

BASIC ASSESSMENT REPORT
APPLICATION FOR ENVIRONMENTAL AUTHORISATION TO THE
NATIONAL DEPARTMENT OF ENVIRONMENTAL AFFAIRS
SEA-BASED AQUACULTURE DEVELOPMENT ZONE

APPENDIX C
Specialist Declaration of Interest
and Expertise

Anchor Research & Monitoring (Pty) Ltd

Reg. no. 2017/458317/07

- marine, estuarine & freshwater ecology • environmental management • resource economics •
- natural resources management • conservation planning •



PROJECT DETAILS

Objective	Application for Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998)
Applicant	Department of Agriculture, Forestry & Fisheries
Environmental Assessment Practitioner (EAP)	Vera Massie under supervision of Dr Barry Clark from Anchor Research & Monitoring (Pty) Ltd
Anchor Project Name	Algoa Bay Sea-based Aquaculture Development Zone Basic Assessment Process
Anchor Project Number	1808
Status	Application phase
Application submission date	To be confirmed
Competent Authority Reference	Not currently assigned
Case Officer	Not currently assigned

OVERVIEW OF PROJECT OUTPUTS BASIC ASSESSMENT REPORT AND APPENDICES

Basic Assessment Report (BAR)	Pre-Application BAR – Released for comment between 28 March and 30 April 2019 Draft BAR - Current Final BAR – To be completed after application-phase public participation period
Appendix A	Environmental Management Programme (EMPr)
Appendix B	Details of EAP, Expertise and Declaration
Appendix C	Details of Specialists, Expertise and Declaration
Appendix D	Specialist studies: <ol style="list-style-type: none"> 1. Benthic Mapping Assessment for the Proposed Algoa Bay Sea-based Aquaculture Development Zone (Dawson <i>et al.</i> 2019) 2. Dispersion Modelling Study for the Proposed Algoa Bay Sea-based Aquaculture Development Zone (Wright <i>et al.</i> 2019) 3. Marine Specialist Study 2019 (Hutchings <i>et al.</i> 2019) 4. Maritime Underwater Heritage Specialist Study (Gribble 2019) 5. Comparative Assessments for the Development of the Proposed Sea-based Aquaculture Development Zone Located within Algoa Bay in the Eastern Cape in South Africa (Rhodes University August 2016) <ol style="list-style-type: none"> a. Socio-economic Report b. Ecological Report c. Feasibility study
Appendix E	Background Information Document
Appendix F	Stakeholder Consultation Report



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

File Reference Number:
NEAS Reference Number:
Date Received:

(For official use only)

DEA/EIA/

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Algoa Bay Sea-based Aquaculture Development Zone
Basic Assessment Process
EAP: Anchor Research & Monitoring (Pty) Ltd.
Marine Specialist: Anchor Research & Monitoring (Pty) Ltd.

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	Anchor Research & Monitoring (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	2	Percentage Procurement recognition
			11%
Specialist name:	Dr Kenneth Hutchings		
Specialist Qualifications:	PhD Zoology – Fish taxonomy, life history, ecology and management, UCT (2005) M.Sc. Zoology (with distinction) – Fisheries management, UCT (2000) B.Sc. (Honours - First Class) Marine Biology, UCT (1997) B.Sc. Zoology/ Environmental and Geographical Science, University of Cape Town (1994)		
Professional affiliation/registration:	South African Council for Natural Scientific Professions (SACNASP) Registration number: 400018/17		
Physical address:	Suite 8, Steenberg House, Silverwood Close, Steenberg Office Park, Tokai		
Postal address:	As above		
Postal code:	7945	Cell:	Not available
Telephone:	021 701 3420	Fax:	021 701 5280
E-mail:	ken@anchorenvironmental.co.za		

DECLARATION BY THE SPECIALIST

I, Kenneth Hutchings, declare that -

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

Anchor Research & Monitoring (Pty) Ltd

Name of Company:

15 July 2019
Date

2. UNDERTAKING UNDER OATH/ AFFIRMATION

Kenneth to complete

I, Kenneth Hutchings, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.


Signature of the Specialist

Anchor Research and Monitoring
Name of Company

17 July 2019
Date


Signature of the Commissioner of Oaths

Janine van Graan
Commissioner of Oaths
Associate General Accountants (S.A.)
P O Box 739
Constantia
7848

17.07.2019
Date

Details of Specialist, Declaration and Undertaking Under Oath



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

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Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Algoa Bay Sea-based Aquaculture Development Zone

Basic Assessment Process

EAP: Anchor Research & Monitoring (Pty) Ltd.

Assigned Heritage Specialist: ACO Associates cc

Maritime Archaeological Impact Assessment

Kindly note the following:

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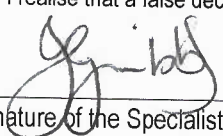
1. SPECIALIST INFORMATION

Specialist Company Name:	ACO Associates cc		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition 4%
Specialist name:	John Gribble		
Specialist Qualifications:	MA Archaeology		
Professional affiliation/registration:	Association of Southern African Professional Archaeologists Member ASAPA (#043)		
Physical address:	Unit D17, Prime Park, 21 Mocke Road, Diep River		
Postal address:	As above		
Postal code:	7800	Cell:	Not available
Telephone:	021 706 4104	Fax:	078 616 2961
E-mail:	john.gribble@aco-associates.com		

DECLARATION BY THE SPECIALIST

I, John Gribble, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

ACO Associates cc

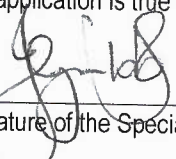
Name of Company:

16-7-2019

Date

2. UNDERTAKING UNDER OATH/ AFFIRMATION

I, John Gribble, ~~swear under oath~~ / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



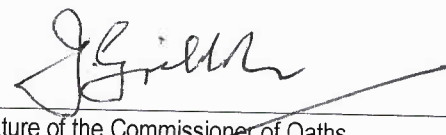
Signature of the Specialist

ACO ASSOCIATES

Name of Company

16-7-2019

Date



Signature of the Commissioner of Oaths

Rev. James Gribble
COMMISSIONER OF OATHS
MARRIAGE OFFICER (V3146) - REPUBLIC OF SOUTH AFRICA
"Windfall", 123 Woodgate Road, Plumstead 7800

Date

Details of Specialist, Declaration and Undertaking Under Oath

Anchor Research & Monitoring (Pty) Ltd staff to be deployed on the project for the marine specialist study of the Basic Assessment Process.

Name of Staff	Area of Expertise	Position Assigned	Task Assigned
Ken Hutchings	Aquaculture, fisheries and marine ecology	Marine ecology and aquaculture specialist	Reviewer of marine biology and ecology related aspects. Supervision of Benthic Habitat Mapping and Dispersion modelling studies.
Megan Laird	Marine and coastal ecology, impact assessment	Marine ecology specialist study	Assistance with the marine specialist impact assessment.
Amy Wright	Marine and coastal ecology, impact assessment, dispersion and carrying capacity modelling	Dispersion and carrying capacity modelling	Dispersion modelling, assistance with the marine specialist impact assessment, project description
Jessica Dawson	Estuarine and benthic ecology, taxonomy	Benthic community analyses and description	Benthic mapping report
Erika Brown	Geographic Information Systems – Mapping and Conservation Planning	GIS specialist	Produce maps for the BAR

Maritime Heritage Impact Assessment:

Anchor appointed John Gribble from ACO Associates cc to conduct the Maritime Heritage Assessment as part of the Basic Assessment process for the proposed sea-based Aquaculture Development Zone in Algoa Bay. His CV is enclosed in Appendix 5 of the Maritime Heritage Impact Assessment study in Appendix D of this BAR.

KENNETH HUTCHINGS –CURRICULUM VITAE

Born: 15 June 1972, South Africa
Nationality: South African
Languages: English excellent/Afrikaans good/ Xhosa fair
Present occupation: Senior Consultant
Work address: 8, Steenberg House, Silverwood Close, Tokai 7945 South Africa
Drivers licence: Code 08, 30/07/1990
Commercial dive qualifications: Class III scientific, Supervisor
Commercial skippers ticket: Category B (< 9m, 40 NM, dive & night operations)
Email: ken@anchorenvironmental.co.za

SUMMARY PROFILE

Dr Hutchings has research and consulting experience in the fields of fisheries management, mariculture, estuarine research and management, marine and estuarine spatial planning, marine impact assessment, research and conservation strategy development, fishery socio-economic surveys and analyses, biological sampling and life-history analyses of fish (age and growth, reproduction, mortality, migration, diet, ecology), taxonomic methodology, population genetics, fisheries modelling, marine ecotoxicity trials, trace metal pollution and physico-chemical, ecological and biodiversity surveys of marine, estuarine and freshwater habitats. Dr Hutchings is experienced in developing estuarine and coastal management plans and in conducting public participation processes. Dr Hutchings is a research associate of the University of Cape Town's Marine Research Institute. He has excellent verbal and writing communication skills, is competent with most software packages used in scientific research and consulting projects. He has published 17 scientific papers and compiled more than 50 consulting reports. Dr Hutchings is comfortable working as part of a team in both a leadership and mentoring position or as a team member. Dr Hutchings has participated in international collaborative studies in Angola, Tanzania, Namibia, Sierra Leone, Republic of Congo, Somaliland and Mauritius and has visited and participated in fisheries in Mozambique, Madagascar, Seychelles, New Zealand and Belize. He was actively involved in commercial fishing around Cape Town for 14 years, has practical experience in several sectors and has good understanding of most commercial fishing methods (line, spear, pole, gill net, trammel, net, beach seine net, trap, longline, trawl and purse-seine). He has

personally collected scientific data for the demersal trawl and longline hake fisheries, designed, implemented and managed fishery observer training programmes for line, longline, lobster trap and demersal trawl fisheries. He has project managed and completed two, three-year contract research projects for the South African Department of Environmental Affairs and Tourism (Marine and Coastal Management) and numerous consulting projects for state and private sector clients.

TERTIARY EDUCATION:

PhD Zoology – Fish taxonomy, life history, ecology and management, UCT (2005)

M.Sc. Zoology (with distinction) – Fisheries management, UCT (2000)

B.Sc. (Honours - First Class) Marine Biology, UCT (1997)

B.Sc. Zoology/ Environmental and Geographical Science, University of Cape Town (1994)

Distinction in Zoology

RELEVANT WORK AND PROJECT EXPERIENCE

- Senior consultant, Anchor Environmental Consultants (1999-2019) (current position)
- PhD student, Line-fish research (under contract to MCM) (2001-2005)
- Research officer, Zoology Department, University of Cape Town (1998-2000)
- Demersal Trawl Fishery, scientific observer, University of Cape Town (1995)
- Commercial squid (freezer vessel), line-fish crew (deck boat), ski boat crew/skipper, Beach-seine fishing crew, boat-skipper, shore skipper, B & K fishing CC. Messrs. G. William, M. Johnson & B. Docke (1986-2006)

SELECTED RECENT EXPERIENCE

Period	Country	Client	Project, Tasks
2019	South Africa	South African National Parks	Subtidal surveys of commercially important invertebrates and indicator species within the Table Mountain Marine Protected Area. Project leader.
2018-2019	Namibia	Namibian DeBeers	Sandy beach, rocky intertidal and subtidal monitoring programme. Studies on the effects of mining activities and mitigation measures to avoid or minimise impacts on the affected environment. Sandy beach team leader, survey design, implementation, analysis and reporting.
2018-2019	South Africa	Umhlatuze Water	Environmental monitoring of the Richards Bay Pipelines. Field team survey leader, oceanography and fish specialist.

Period	Country	Client	Project, Tasks
2018-2019	South Africa	Department of Agriculture, Forestry and Fisheries	Marine specialist impact assessment study for the declaration of proposed bivalve and finfish aquaculture development zones in Algoa Bay
2018	Somaliland	WSP, DP World	Marine and coastal Environmental and Social Impact Assessment for proposed Berbera Port expansion.
2018	Namibia	Ministry of Mines and Energy	Marine benthic baseline study of intertidal and subtidal habitats in vicinity of new oil and gas terminal
2018	Republic of Congo	The Biodiversity Company, Kola Potash	Oceanographic and benthic surveys and ecotoxicity trials to assess potential impacts of proposed potash processing discharge, jetty construction and transshipment of product.
2017-2018	Sierra Leone	Sierra Rutile PTY Ltd	Fish and fisheries expert assess downstream impacts of rutile mining operation on downstream estuarine and marine habitats.
2017	South Africa	Southern Cross Salmon Pty Ltd.	On site oceanographic monitoring and environmental impact assessment for proposed salmon sea cage farm, Saldanha Bay
2017	South Africa	National Nuclear Regulator	Marine and fisheries expert review of Thyspunt site safety report submitted by Eskom.
2016-2017	South Africa	Royal Society for the Protection of Birds	Design and conduct a feeding trial experiment to assess the uptake of the rodenticide brodifacoum by Tristan Rock lobsters <i>Jasus paulensis</i> . Senior consultant responsible for all aspects of the study, including permitting, experimental design and setup, data analysis and reporting.
2016-2017	South Africa	Department of Water and Sanitation	Classification of and resource quality objectives for the water resources of the Berg and Breede water management areas. Senior consultant responsible for status quo descriptions of estuaries in the two study areas and fish specialist for ecological reserve determination studies on nine estuaries.
2016	South Africa	WorleyParsons RSA (Pty) Ltd and Oiltanking MOGS (Pty)	Marine Impact Assessment for sea water intake and discharge facility at Saldanha Bay. Senior consultant responsible for report.
2016	South Africa	MOGS (Pty) Ltd	Marine baseline report for import facility for natural gas in Saldanha Bay.
2016	South Africa	Port Owen Marina	ADCP measurement and analysis of

Period	Country	Client	Project, Tasks
		Authority	current velocity in relation to tidal phase in the Berg River Estuary. Development of a timetable for disposal of dredge spoil that is compliant with conditions stipulated in the environmental authorization. Senior consultant responsible for survey and reporting.
2016	South Africa	DeBeers Marine Namibia	Assist with statistical analysis of data collected as part of a long-term benthic monitoring programme.
2016	South Africa	SE Solutions (Pty) Ltd and South32 Aluminium SA Limited	Prepare marine and estuarine specialist study for EIA for a desalination plant in Richards Bay to supply Hillside Aluminium with process water. Study leader, field investigation and report compilation.
2016	South Africa	City of Cape Town	Preparation of estuary maintenance plan impact assessment reports for eight estuaries within the megacity boundaries. Study leader undertook site visits, liaised with city staff and compiled reports.
2016	South Africa	Atlantic Salmon Pty Ltd.	Deploy and retrieve an acoustic Doppler current profiler to measure currents at a proposed salmon farm site in St Helena Bay. Analyse and present data.
2015-2016	South Africa	Mossel Bay Municipality	Preparation an estuary management plan for the Hartenbos Estuary. Supervisory role in development of plans, presentation and chairing of public meeting.
2014-2016	South Africa	Transnet National Ports Authority	Field survey team leader for the implementation of a water, sediment quality and biological monitoring programme in the Port of Durban. Supervision of analysis and reporting.
2014-2016	South Africa	Coega Development Corporation	Assessment of impacts of waste water discharge from Coega Industrial Development Zone, Algoa Bay. Conduct oceanographic data analysis, marine and marine baseline study.
2014-2016	South Africa	Nelson Mandela Bay Metro, GIBB	Assessment of impacts of waste water discharge from a new WWTW at Cape Recife, Algoa Bay. Oceanographic, bathymetry and ecological survey team leader, data analysis and reporting.
2006-2017	Namibia	NamDeb Namibia	Sandy beach macrofauna and sediment quality monitoring programme for the Bogenfels and MA1 Mining Licence Areas, Namibia. Studies reported on the effects of mining activities and mitigation

Period	Country	Client	Project, Tasks
			measures to avoid or minimise impacts on the affected environment. Sandy beach team leader, survey design, implementation, analysis and reporting.
2015	South Africa	NWJ Environmental	Impact assessment for a proposed sand mining operation on the Umzumbe Estuary, KwaZulu-Natal. Ecological and physic-chemical estuarine survey design, implementation and reporting.
2015	South Africa	Marutleng SHE Services	Marine Impact Assessment Simonstown-Glencairn Railway Rehabilitation and Maintenance Work. Sandy beach and rocky shore survey design, implementation and reporting.
2015	South Africa	AquaTech	Risk assessment for in-water hull cleaning operations in the Port of Durban, South Africa. Contribution to methodology, supervision of sampling protocol, review of report.
2015	Namibia	Pisces Environmental Services	Gecko Namibia Vision Industrial Park Development. Compilation of baseline field survey ichthyofauna report.
2014-2015	South Africa	South African Pelagic Fishing Industry Association	Assessment of the socio-economic impacts of a reduction in the sardine minimum Total Allowable Catch (TAC). Project design, data collection by means of interviews with industry and fishery scientists, socio-economic analysis and reporting.
2014	South Africa	Molapong Aquaculture	Risk Assessment for culture of King and Coho salmon in South Africa. Reporting and review.
2014	South Africa	Transnet National Ports Authority	Assessment of potential impacts of the proposed Durban Dig Out Port of the annual sardine migration up the East coast of South Africa. Research and reporting.
2014	South Africa	WWF-SA	Development of a Fisheries Improvement Project for Small Scale Fisheries in the Kogelberg. Undertaking fisheries assessments, workshops and reporting.
2014	South Africa	Tronnox Namaqua Sands, Matzikamma Municipality, SRK	Environmental impact assessment for an aquaculture facility at Doringbaai, Northern Cape. Assessment of sites for intake and discharge infrastructure and potential environmental impacts of proposed abalone and finfish aquaculture discharges on the marine environment.
2014	South Africa	Cape Nature	Rezoning and realignment of borders for Betty's Bay, Goukamma and Robberg

Period	Country	Client	Project, Tasks
			marine protected areas in South Africa. Fisheries impacts, advice and review.
2014-2017	South Africa	Port Nolloth Sea Farms Ranching (PTY) LTD	Baseline survey and monitoring for abalone ranching concession area NC3, Team leader responsible for sub tidal ecological survey design, implementation and reporting.
2013-2014	South Africa	iSimangaliso Wetland Park Authority	Assessment of the hydrological, hydrodynamic and ecological functioning of the Lake St Lucia Estuarine System and formulation of recommendations for rehabilitation and improved management of the system. Responsible for an assessment of marine fishery impacts under past, present and future management scenarios.
2013	South Africa	Cape Nature, Department of Environmental Affairs	Assessment of impacts of an oil spill on sandy beach and rocky intertidal communities in the Goukamma MPA. Field survey design and implementation.
2013	South Africa	Department of Agriculture, Forestry & Fisheries (DAFF)	Development of a Strategy for Research in the Fisheries Sector. Principal consultant responsible for consultation, data acquisition and reporting.
2013	South Africa	Transnet National Ports Authority	Marine specialist study as part of an EIA for upgrading the General Maintenance Quay (GMQ) in the Port of Saldanha Bay. Field survey leader.
2013	South Africa	Sea Harvest	Assessment of fish factory effluent water quality. Sampling, analysis and reporting.
2013, 2015-2016	South Africa	Department of Agriculture, Forestry & Fisheries (DAFF)	Diving Surveys of the Eastern Cape Abalone Resource. Study leader responsible for planning, implementation and reporting.
2012, 2016-2018	South Africa	Department of Agriculture, Forestry & Fisheries (DAFF)	Telephone surveys of west coast rock lobster recreational fishery. Study leader responsible for planning, implementation and reporting.
2012	South Africa	South African National Parks	Fisheries consultant for a study of the potential impacts of the Addo Elephant National Park Marine Protected Area on commercial fisheries and their value. Tasks included collection of data by means of interviews with fishing industry representatives and government scientists, data analysis and reporting.
2012	Mauritius	Mauritius Oceanography Institute	Diving team leader for alien species, and water and sediment quality assessment of Port Louis, Mauritius.
2012	South Africa	Transnet National	Marine specialist appointed to assess

Period	Country	Client	Project, Tasks
		Ports Authority	potential impacts of iron ore oxide (Fe ₂ O ₃) on the marine flora and fauna of Saldanha Bay. Analysis of storm water runoff.
2012	South Africa	Amathole Water Board	Marine specialist appointed to assess the suitability of different sites and the impacts of reverse osmosis desalination plant discharge on the marine environment.
2010-2013	South Africa	Department of Agriculture, Forestry & Fisheries (DAFF)	Principal consultant as marine ecology and aquaculture specialist on an EIA for four Marine Aquaculture Development Zones (MADZs) in the Eastern Cape, South Africa. Project tasks included reviewing available technology and its suitability for use at each of the selected sites, identifying key risks and impacts that could arise from the culture of selected species on the sites including impacts on existing beneficial uses, and developing an Environmental Management and Monitoring Plan for each site as a whole as well as individual concession areas within each site.
2011	South Africa	Department of Agriculture, Forestry & Fisheries (DAFF)	Principal consultant on a Strategic Environmental Assessment (SEA) to identify potential sea-based finfish aquaculture development zones (ADZ) off the South African coastline. The study entailed identifying and applying a suite of quantitative site selection criteria in a geographical information system (GIS) framework to identify suitable sites for sea based finfish culture in South Africa, taking account of environmental suitability, environmental sensitivity, and user conflict considerations.
2011	South Africa	Element Consulting Engineers	Marine specialist baseline report for a reverse osmosis desalination plant at Lamberts Bay. Responsible for sub-tidal ecological survey design, implementation, analysis and reporting.
2011	South Africa	Really Useful Investments no 72 (PTY) LTD	Environmental assessment for the abalone (<i>Haliotis midae</i>) ranching right application (phase 2) in the Northern Cape (area NC2). Desktop research and reporting.
2011	South Africa	Council for Scientific and Industrial Research (CSIR)	Benthic macrofauna and fish baseline survey for a reverse osmosis desalination plant at Saldanha. Survey team leader

Period	Country	Client	Project, Tasks
			responsible for design, implementation analysis and reporting.
2010	South Africa	Department of Environmental Affairs & Development Planning, Western Cape Government	Assessment of the effects of heavy metal accumulation from land based sources on the Diep River Estuary. Principal consultant on a study assessing trace metal pollution in the Diep estuary in the City of Cape Town, to investigate potential sources of pollution and to prepare management recommendations for addressing principal sources of pollution.
2010	South Africa	Port Owen Marina Authority	Assessment of Port Owen marina dredging activities on the Berg River estuarine fish and macrobenthos communities. Senior consultant responsible for survey and reporting.
2010	South Africa	Chand Environmental	Marine and coastal specialist appointed to assess the status and sensitivity of the coastal marine environment off Partridge Point on the Cape Peninsula, and likely impacts that would arise from development of the site.
2009-2019	South Africa	Various companies	Consultant on a series of environmental impact assessments for desalination plants at Sedgefield, Plettenberg Bay, Witsands, Saldanha Bay, Mossel Bay and Port Nolloth, and Cape Town. (7 separate appointments).
2009-2011	South Africa	Cape Action Plan for People & the Environment (C.A.P.E.)/Cape Nature/Marine & Coastal Management (MCM)	Consultant appointed to develop a management plans for the Olifants, Berg, and Uilkraals Estuaries, South Africa. (Three separate appointments). Projects entailed preparing situation assessments and strategic management plans for the Olifants, Berg and Uilkraals estuaries that included recommendations for establishment of a new marine protected area, terrestrial protected area, zonation plans for each of these elements, visitor management plans, and recommendations for institutional development. Consultant appointed for the implementation of the Verloerenvlei estuary management plan. All projects included presentation of plans and consultation with stakeholder leading to the establishment of estuary management forums comprising management agency representatives and

Period	Country	Client	Project, Tasks
			local stakeholders.
2009-2011	South Africa	WWF-SA, Lotto Programme	Scientific advisor on a recreational fisheries monitoring programme coordinating a team of 20 fisheries monitors at 6 sites on the South and East coasts of South Africa. Tasks included on-going training, quality control and report reviews.
2009-2010	South Africa	WWF-SA/Cape Action for People and the Environment (C.A.P.E.)	Fisheries consultant for the preparation of marine and coastal spatial plans and socio-economic assessments for the Kogelberg Biosphere Reserve and Garden Route Initiative. The project involved mapping biodiversity pattern and processes in the marine and coastal environment, spatial mapping of economic value, goods and services, and of threats to these ecosystems.
2009	South Africa	West Coast District Municipality, Jeffares & Green (Pty) Ltd	Principal consultant on an assessment of the Jakkalsvlei estuary, the purpose of which was to describe and assess the ecological impacts of illegal excavation and infilling activities that took place during July 2008, and to draft rehabilitation plan to mitigate any impacts.
2009	South Africa	City of Cape Town	Consultant on project to prepare a situation assessment for the Coastal Monitoring Programme for the City of Cape Town (City of Cape Town). Preparation of an overview report on the conservation status and sensitivity of the City of Cape Town Coast including estuaries.
2009	South Africa	Doug Jeffery Environmental Consultants	Senior consultant on an assessment of the status and sensitivity of the coastal marine environment off Oudekraal on the Cape Peninsula with an assessment of potential constraints relating to impacts to the marine environment on the development of the site.
2009, 2015' 2016	South Africa	Department of Environmental Affairs & Tourism: Marine and Coastal Management (DEAT: MCM)	Estimation of west coast rock lobster catch and effort by the recreational fishery sector. Responsible for telephone survey data analysis and reporting. Project included a series of workshops aimed at resolving inconsistencies in previous surveys and developing improved methodology for future surveys.

Period	Country	Client	Project, Tasks
2009	South Africa	Chand Environmental Consulting	Marine and coastal specialist appointed to assess the status and sensitivity of the coastal marine environment off Oudekraal on the Cape Peninsula, and likely impacts that would arise from development of the site.
2008-2011	South Africa	Century City Property Owners Association	Principal consultant on a study to assess the effectiveness of a fish eradication programme conducted in the Century City wetlands and canals using the ichthyocide rotenone, and for development of recommendation for future management of the system
2007-2011	South Africa	Resource Ballast Technology (Pty) Ltd	Consultant appointed as independent assessor of efficacy of a newly developed ballast water treatment system and evaluation (risk assessment) of the residual toxicity of ballast water treated with the system. Project entailed verifying the efficacy of the ballast water treatment system as well as literature survey and laboratory toxicity testing to assess the residual acute and chronic toxicity of the treated ballast water to a variety of different organisms and potential risks posed by the treated ballast water to the environment and human health.
2007-2011	South Africa	Department of Environmental Affairs & Tourism: Marine and Coastal Management (DEAT: MCM)	Scientific advisor of a shore based fisheries monitoring programme designed to assess levels of fishing mortality, stock abundance indices and to evaluate the effectiveness of management measures for the commercial and recreational linefishery, tuna pole and hake handline fishing in South African waters. Scientific advisor was responsible for recruiting and training a team of ten fishery observers who were deployed at strategic landing sites around the country, quality control of all data collected and review of data reports.
2007-2010	Ghana	Tullow Oil Plc	Consultant responsible for preparation of Environmental Impact Assessment, Environmental Overview and identification of Environmental Best Management Practise (BMP) required for seismic surveying and exploratory drilling for offshore oil and gas resources in the

Period	Country	Client	Project, Tasks
			Tano shallow water and Deep water blocks in Ghana. (Three separate EIA studies).
2006-2011	Tanzania	International Conservation Union (IUCN)/Pangani Water Basin Office, Tanzania	International mentor of the Estuary Team for a project entitled "Flows for People and the Environment: Supporting Sustainable Land Management in the Pangani Basin (Tanzania)". The estuary component of the project included conducting a health assessment of the Pangani estuary with the Tanzanian national team and the development of a flow assessment tool to guide allocation of freshwater flow in the system.
2006	South Africa	Department of Science and Technology	Investigation of stakeholder requirements and potential host institutions for the South African National Antarctic Programme (SANAP).
2005-2007	Angola	BCLME Programme/ United Nation Development Programme (UNDP)/ UNOPS/Global Environment Facility (GEF)	Consultant on a project aimed at assessing the status of biodiversity along the Angola coastline. The project entailed completing a series of field surveys at selected localities at approximately 100 km spacing along the Angolan coastline at which inshore fish, rock intertidal and sandy beach biota were surveyed. Data were analysed with a view to identifying biogeographic patterns in Angolan coastal fauna and flora.
2005-2007	South Africa	Cape Action Plan for People & the Environment (C.A.P.E.), Cape Nature, and Department of Environmental Affairs & Tourism: Marine and Coastal Management (DEAT: MCM)	Consultant on a biodiversity and economic assessment and development of an integrated conservation plan for CAPE estuaries. The project comprised filling estuary biodiversity data gaps (collection and collation of new botanical, fish and bird data for temperate South African estuaries).
2007, 2005	South Africa	Transnet-National Ports Authority (Transnet NPA)	Consultant on ballast water, flora and fauna survey in the Ports of Durban and Port Elizabeth. Surveys were conducted in representative examples of all habitat types present in the Port of Durban and Port Elizabeth to identify all species present in the port, including all alien and potentially cryptogenic species. Responsible for sampling and reporting.

Period	Country	Client	Project, Tasks
2005	South Africa	National Empowerment Fund (NEF)	Principal consultant on a due diligence (feasibility) study to assess the feasibility of a proposed eel aquaculture and processing operation in the Eastern cape, South Africa, focussing on biological, ecological, logistic and legislative considerations of the proposed project.
2001-2005	South Africa	Department of Environmental Affairs & Tourism: Marine and Coastal Management (DEAT: MCM)	Project leader on a research programme that investigated the taxonomy, biology and management of South African Sciaenid fish of the genus <i>Umbrina</i> . Responsible for project design, sampling strategy, biological sampling and processing of samples to provide data on taxonomy, age and growth, reproduction and population genetics. Analysis and use of these data in stock assessments and management recommendations.
2005	South Africa	Emross Consulting CC.	Marine specialist for the assessment of the potential impacts of a boat launching site on the marine environment at Mbotyi River Mouth.
2004-2019	South Africa	Saldanha Bay Water Quality Forum Trust (SBWQMFT)	Senior consultant on a team appointed to develop a series of "State of the Bay" Monitoring Programme and Reports for Saldanha Bay and Langebaan Lagoon in 2004, and annually between 2008 and 2015. The project involved collation and analysis of historic data from a wide range of disciplines, identification of key indicators for the reporting system, as well as initiating new data collection and survey programmes, and the production of annual monitoring reports and five-yearly State of the Bay Reports.
2003-2005	South Africa	Department of Water Affairs & Forestry (DWAF)	Estuarine and fisheries consultant on the Berg River Baseline Monitoring Programme. The objective of the baseline monitoring programme was to describe the natural and present state, including the natural variability, of those chemical, physical and biological characteristics of the river and its hydraulically linked systems (i.e. estuary, floodplains and groundwater) most likely to be affected by changes imposed after the construction of the Skuifraam Dam. The study spanned a period of three years and required a multidisciplinary approach. Duties included assisting

Period	Country	Client	Project, Tasks
			specialists from a wide range of disciplines including water quality, sociology, macroinvertebrates, fish, avifauna, vegetation and algae.
2001-2003	South Africa	Department of Environmental Affairs & Tourism/ Rhodes University	Fisheries specialist contracted to assist with an Economic Sectoral Study of the South African Fishing Industry. The consultant was responsible for collecting requisite data on the linefish, sector.
2001	South Africa	GEF/UNDP/IMO Globallast Programme	Fish scientist on a ballast water surveys in the Port of Saldanha. The objective of the study was to survey representative examples of all habitat types present in the ports with a view to developing a full list of all species including all alien and potential cryptogenic species in the port.
1999-2000	South Africa	Foundation for Research Development	Researcher on a project to assess the impacts of exploitation of wonderworm <i>Marphysa sanguinea</i> on bouldershore habitats on the Cape Peninsula, South Africa. The project included field surveys, literature review, statistical analysis of data and report production.
1998-2000, 2007-2011	South Africa	Department of Environmental Affairs & Tourism: Marine and Coastal Management (DEAT: MCM)	Scientific advisor and operations manager of an offshore, boat-based fisheries monitoring programme designed to supply and deploy aboard fishing vessels, competent, suitably trained and equipped scientific observers for the inshore trawl, hake longline and west coast rock lobster fisheries. Responsibilities of the scientific advisor included ensuring that observers were trained to collect accurate data on the nature of fisheries operations (catch, effort, fishing area, gear used, etc.), catch composition, by-catch mortality, fish biology (length, sex, reproductive state, stomach fullness, fat index), and quantity and size range of discarded target species, and biological samples (e.g. stomachs, gonads, otoliths, and flesh samples) as required. Data were captured electronically and submitted to the client for use in stock assessment and resource management programme.
1998-2000	South Africa	Department of Environmental Affairs & Tourism: Marine and Coastal Management	Lead researcher on a 3 year project that assessed the catch, effort and socioeconomic status of the Western Cape gill and beach-seine net fisheries.

Period	Country	Client	Project, Tasks
		(DEAT: MCM)	Responsible for project design and implementation. Included sampling of commercial fish catches, conducting detailed socio-economic interviews with industry participants, experimental netting and interpretation of the findings into management recommendations.



SCIENTIFIC PUBLICATIONS

- PARKER D, SE KERWATH, TF NÆSJE, CJ ARENDSE, FJ KEULDER-STENEVIK, K HUTCHINGS, BM CLARK, H WINKER, PD COWLEY & CG ATTWOOD 2017. When plenty is not enough: an assessment of the white stumpnose (*Rhabdosargus globiceps*) fishery of Saldanha Bay, South Africa, *African Journal of Marine Science*, 39:2, 153-166
- HUTCHINGS, K & C.G ATTWOOD 2013 Belman (*Umbrina robinsoni*) In: Mann BQ. (Ed). Southern African Marine Linefish Species Profiles. Special publication, Oceanographic Research Institute, Durban 9:165-166.
- HUTCHINGS, K. and M. H. GRIFFITHS 2010 - Life-history strategies of *Umbrina robinsoni* (Sciaenidae) in warm-temperate and sub-tropical South African marine reserves. *Afr. J. mar. Sci.* **32(1)**:37-53
- HUTCHINGS, K. and M. H. GRIFFITHS 2010 – Assessment of South African *Umbrina robinsoni* based on per-recruit models *Afr. J. mar. Sci.* **32(3)**: 511–523
- HUTCHINGS, K. GRIFFITHS M. H. and S.J LAMBERTH 2010 - An investigation of the effect of temporal variation in growth rate of *Umbrina robinsoni* on biological reference point estimates calculated using per-recruit models. *Afr. J. mar. Sci.* **32(3)**: 633–636
- CLARK, B.M., HUTCHINGS, K., and S.J. LAMBERTH 2009. Long-term variations in the composition and abundance of fish in the Berg estuary, South Africa. *Trans. R. Soc.SA* **64(2)**: 238-258
- LAMBERTH, S.J., VAN NIEKERK, L and K HUTCHINGS 2008 Comparison of, and the effects of altered freshwater inflow on, fish assemblages of two contrasting South African estuaries: the cool-temperate Olifants and the warm-temperate Breede. *Afr. J. mar. Sci.* **30(2)**: 311–336.
- HUTCHINGS, K., CLARK, B.M., ATKINSON, L.J. and C. G. ATTWOOD 2008 - Evidence of recovery of the linefishery in the Berg River Estuary (Western Cape, South Africa) subsequent to closure of commercial gill netting. *Afr. J. mar. Sci.* **30(3)**: 507–517.
- HUTCHINGS, K., GRIFFITHS, M. H. and J. G. FIELD 2006 – Regional variation in the life history of the canary drum *Umbrina canariensis* (Sciaenidae), in South African waters. *Fish. Res.* **77**:312-325.
- GRIFFITHS, C. L., VAN SITTERT, L., BEST, P. B., BROWN, A. C., CLARK, B. M., COOK, P. A., CRAWFORD, R. J. M., DAVID, J. H. M., DAVIES, B. R., GRIFFITHS, M. H., HUTCHINGS, K., JERARDINO, A., KRUGER, N., LAMBERTH, S., LESLIE, R. W., MELVILLE-SMITH, R., TARR, R. and C. D. VAN DER LINGEN 2004 – Impacts of human activities on marine animal life in the Benguela: A historical overview. *Oceanogr. Mar. Biol. Ann. Rev.* **42**: 303-392.

- HUTCHINGS, K. and M. H. GRIFFITHS 2005 - Identity and distribution of southern African sciaenid fish species of the genus *Umbrina*. *Afr. J. mar. Sci.* **27**(1): 1-22.
- HUTCHINGS, K. and S. J. LAMBERTH 2003 - The likely impacts of an eastward expansion of the gill-net fishery in the Western Cape, South Africa; Implications for Management. *Mar. Freshwat. Res.* **54**: 39-56.
- HUTCHINGS, K. and S. J. LAMBERTH 2002 – Catch and effort estimates for the gill and beach-seine net fisheries in the Western Cape, South Africa. *S. Afr. J. mar. Sci.* **24**: 205-225
- HUTCHINGS, K. and S. J. LAMBERTH 2002 - By-catch in the gill and beach-seine net fisheries in the Western Cape, South Africa, with implications for management. *S. Afr. J. mar. Sci.* **24**: 227-241
- HUTCHINGS, K., LAMBERTH, S. J. and J. K. TURPIE 2002 – Socio-economic characteristics of gill and beach-seine net fishers in the Western Cape, South Africa. *S. Afr. J. mar. Sci.* **24**: 243-262
- VAN TETS, I. G., HUTCHINGS, K. and S.W. NICHOLSON 2000 – Relative merits of using purified proteins and natural foods in studies of wildlife nutrition: the nitrogen requirements of a rodent pollinator. *Afr. Zool.* **35**(2): 207-215.
- HUTCHINGS, K., LAMBERTH, S. J. and C. L. GRIFFITHS 1999 – Gill nets and line-fish, what is the catch? *SANCOR occasional Report* **5**: 77-84

CONSULTING RESEARCH REPORTS:

- HUTCHINGS K, CLARK BM & B. MOSTERT . 2018 Marine Specialist Study Berbera Port Expansion, Environmental, Social and Health Impact Assessment: Specialist Marine Study Prepared for WSP Africa.
- HUTCHINGS K, VAN NIEKERK, LAIRD MC, CLARK BM, TSHINGANA B, MASSIE V, C-L. RAMJUKADH AND R. BUTTON 2018. Assessment of the impacts of a reverse osmosis desalination plant on the Piesang estuary and nearshore marine habitats Plettenberg Bay. Report no. 1788/1 prepared by Anchor Environmental Consultants(Pty) Ltd and the CSIR for Aurecon South Africa. Pp. 89.
- HUTCHINGS K, CLARK BM, MOSTERT B AND V. MASSIE 2018. Kola Transshipment Zone Environmental Assessment. Wet Season Field Survey Report and Ecotoxicology Testing Results. Report no. 1783/3 prepared by Anchor Environmental Consultants for the Biodiversity Company. Pp. 59
- HUTCHINGS K, CLARK BM, MOSTERT B AND E. BROWN. 2017 Sierra Rutile Project Area 1, Environmental, Social and Health Impact Assessment: Specialist Estuarine Study Prepared for SRK Consulting.
- HUTCHINGS K, WRIGHT A. & B.M. CLARK 2017. Easigas Pty Ltd Mossel Bay natural gas import project. Marine baseline report prepared by Anchor Environmental Consultants for SRK Consulting (South Africa) Pty Ltd.

- HUTCHINGS K and CLARK BM. 2017. Marine Impact Assessment for the Proposed Offshore Disposal of Dredge Material from the Port of Durban, Kwazulu Natal. Report no. 1728/1 prepared by Anchor Environmental Consultants for Nema Consulting.
- HUTCHINGS K and CLARK BM. 2017. Monitoring Survey Report for the Abalone Ranching Concession Area NC3. Technical Report No. 1417/4 Prepared by Anchor Environmental Consultants for Port Nolloth Sea Farms Ranching (Pty) Ltd
- HUTCHINGS K, FORSYTHE K & CLARK B.M. 2016. City of Cape Town Surface Stormwater Systems, Estuary Impact Assessment reports (8). Prepared by Anchor Environmental Consultants for City of Cape Town.
- HUTCHINGS K & CLARK B.M. 2016. Diving surveys of the Eastern Cape Abalone Resource Management Areas 1 & 6. Technical Report prepared by Anchor Environmental Consultants for the Department of Agriculture, Forestry and Fisheries
- HUTCHINGS K AND CLARK BM. 2016. Monitoring Survey Report for the abalone ranching concession area NC3. Technical Report no. 1556/3 prepared by Anchor Environmental Consultants for Port Nolloth Sea Farms Ranching (Pty) Ltd.
- HUTCHINGS K & CLARK B.M. 2016. Relocation of rock lobster *Jasus lalandi* and abalone *Haliotis midae* from the wreck of the Harvest Sirius in Salamander Bay Saldanha. Report prepared for the Department of Agriculture, Forestry and Fisheries.
- HUTCHINGS K & CLARK B.M. 2016. Proposed HDPE pipeline and sea water intake and discharge for Oiltanking MOGS Saldanha (RF) (PTY) LTD. Marine Impact Assessment Report prepared by Anchor Environmental Consultants for WorleyParsons RSA (Pty) Ltd and Oiltanking MOGS (Pty).
- HUTCHINGS K & CLARK B.M. 2016. Biodiversity risk assessment for Tristan rock lobster *Jasus paulensis*. Prepared by Anchor Environmental Consultants for Royal Society for the Protection of Birds.
- HUTCHINGS K & CLARK B.M. 2016. Hillside Aluminium Desalination Plant. Marine and Estuarine Impact Assessment Report prepared by Anchor Environmental Consultants for SE Solutions (Pty) Ltd and South32 Aluminium SA Limited.
- HUTCHINGS K & CLARK B.M. 2016. Saldanha Ankerlig natural gas import project. Marine baseline study report prepared by Anchor Environmental Consultants for MOGS (Pty) Ltd
- HUTCHINGS, K, LAIRD, MC and BM CLARK. 2016. Marine Specialist Report. Upgrade of the current sea based outfall for treated sewage effluent at Cape Recife, Port Elizabeth. Prepared for: CEN Integrated Environmental Management Unit.
- PULFRICH A & HUTCHINGS K. 2016. Survey of Sandy-Beach Macrofaunal Communities on the *Sperrgebiet* Coastline . Consolidated Beach Monitoring Report: 2014. Prepared for: NAMDEB Diamond Corporation (Pty) Ltd.
- HUTCHINGS, K, CLARK BM & MC LAIRD. 2015. Marine Impact Assessment Simonstown-Glencairn Railway Rehabilitation and Maintenance Work. Prepared for: Marutleng SHE Services.
- HUTCHINGS, K. & BM CLARK 2015. Environmental sensitivity assessment Umzumbe estuary KZN. Prepared for: Environmental Planning and Design CC.

- HUTCHINGS, K, CLARK BM & MC LAIRD. 2015. Baseline marine report. Upgrade of discharge of treated sewage effluent into the sea at Cape Recife, Port Elizabeth. Prepared for: CEN Integrated Environmental Management Unit.
- HUTCHINGS, K. & A BICCARD 2015. Gecko Namibia Vision Industrial Park Development Baseline Field Survey Report: Surf Zone Fish. Prepared for: Pisces Environmental Services (Pty) Ltd.
- CLARK BM, HARMER RW, HUTCHINGS K, MASSIE VKR, BROWN EA and LAIRD MC. 2015. Baseline Environmental Monitoring of Sand Banks in the Port of Durban. Technical Report No. 1486/4 prepared by Anchor Environmental Consultants for Nemai Consulting and Transnet National Ports Authority. HUTCHINGS, K. & BM CLARK 2014. Baseline survey and monitoring plan for abalone concession area NC3. Prepared for Port Nolloth Sea Farms Ranching (PTY) LTD.
- HUTCHINGS, K. & BM CLARK 2014. Assessment of the potential impacts of the Durban dig-out Port breakwater on the annual Kwa-Zulu Natal sardine migration. Prepared for Transnet National Ports Authority.
- PULFRICH A, HUTCHINGS K, BICCARD A. CLARK BM & MC LAIRD. 2014. Survey of Sandy-Beach Macrofaunal Communities on the *Sperrgebiet* Coastline . Consolidated Beach Monitoring Report: 2014. Prepared for: NAMDEB Diamond Corporation (Pty) Ltd.
- LAIRD MC, HUTCHINGS K & BM CLARK 2014. Marine Ecology Screening Report for Proposed Abalone Aquaculture Farms at Doringbaai, West Coast, South Africa. Prepared for: SRK Consulting.
- LIEBAU V, HUTCHINGS K & BM CLARK 2014. Biodiversity Risk Assessment for King Salmon *Oncorhynchus tshawytscha*. Prepared for: Molapong Aquaculture.
- LIEBAU V, HUTCHINGS K & BM CLARK 2014. Biodiversity Risk Assessment for Coho Salmon *Oncorhynchus kisutch* Prepared for: Molapong Aquaculture.
- TURPIE J, FEIGENBAUM T, TALBOT M, HAYMAN M, CHIPEYA T & K HUTCHINGS 2014. Baseline Socio-Economic Assessment. GEF Grant No. TF096152: Development, Empowerment and Conservation in the iSimangaliso Wetland Park and Surrounding Region. Component 1: Analysis of alternatives to determine the most feasible solution to the hydrological issues of the Lake St Lucia estuarine system. Compiled for: iSimangaliso Wetland Park Authority.
- CLARK BM, LAIRD M, HUTCHINGS K, LIEBAU V, BICCARD A, TURPIE J, & PARKER-MALLICK N. 2014. *The State of Saldanha Bay and Langebaan Lagoon 2013/2014*. Technical Report. Report no. 1581/1 prepared by Anchor Environmental Consultants for the Saldanha Bay Water Quality Trust.

- HUTCHINGS, K, CLARK BM & JK TURPIE 2014. Socio-economic implications of an alternative minimum sardine TAC. Prepared South African Pelagic Fishing Industrial Association.
- HUTCHINGS, K. & BM CLARK 2013 Development of a Strategy for Research in the Fisheries Sector. Prepared for: Chief Directorate: Fisheries Research and Development Department of Agriculture, Forestry and Fisheries.
- HUTCHINGS, K. 2013. Assessment of fish factory effluent water quality. Report prepared for Sea Harvest, Saldanha Bay.
- HUTCHINGS, K & A. BICCARD. 2013. Diving Surveys of the Eastern Cape Abalone Resource. Report prepared for the Department of Agriculture, Forestry and Fisheries.
- HUTCHINGS, K, PORTER, S, & BM CLARK, 2013. Environmental Impact Assessment Marine aquaculture development zones for fin fish cage culture. Description of the Affected Environment. Impact Assessment Marine Specialist Report prepared for Directorate Sustainable Aquaculture Management: Aquaculture Animal Health and Environmental Interactions Department of Agriculture, Forestry and Fisheries.
- HUTCHINGS, K, PORTER, S., & BM CLARK 2013. Environmental Impact Assessment: Marine aquaculture development zones for fin fish cage culture. Impact Assessment Report. Marine Specialist Report prepared for Directorate Sustainable Aquaculture Management: Aquaculture Animal Health and Environmental Interactions Department of Agriculture, Forestry and Fisheries.
- TURPIE, J.K., HUTCHINGS, K., CLARK, B.M. & CLARKE, F. 2012. Potential impacts of the proposed Addo Elephant National Park Marine Protected Area on commercial fisheries and their value. Unpublished report to South African National Parks. Anchor Environmental Report No. 1490-01.
- CLARK, B.M, TUNLEY, K., HUTCHINGS, K., JURK C, GERICKE J and J. TURPIE 2012 - State of the Bay 2011: Saldanha Bay and Langebaan Lagoon. Report for the Saldanha Bay Water Quality Trust.
- CLARK, B.M., PULFRICH, A. and K. HUTCHINGS 2012 - Sandy beach and rocky intertidal monitoring studies in the Bogenfels and MA1 mining licence areas, Namibia. 2012 monitoring report. Report for Namdeb Diamond Corporation, Namibia.
- HUTCHINGS, K. & CLARK, B.M. 2012. Marine specialist report and impact assessment for the proposed brackish water reverse osmosis desalination plant discharge at Port Alfred. Report prepared for Coastal Environmental Services and the Amathole Water Board.

- CLARK, B.M., PULFRICH, A., and K. HUTCHINGS 2011 - Sandy beach and rocky intertidal monitoring studies in the Bogenfels and MA1 mining licence areas, Namibia. 2011 monitoring report. Report for Namdeb Diamond Corporation, Namibia.
- HUTCHINGS, K, PORTER, S., CLARK, B.M and K. SINK 2011. Strategic Environmental Assessment: Identification of potential marine aquaculture development zones for fin fish cage culture. Report prepared for Directorate Sustainable Aquaculture Management: Aquaculture Animal Health and Environmental Interactions Department of Agriculture, Forestry and Fisheries.
- HUTCHINGS, K, CLARK, B.M and K. TUNLEY 2011. Marine baseline report for a proposed reverse osmosis desalination plant at Lamberts Bay. . Report prepared for: Element Consulting Engineers (Pty) Ltd.
- PORTER, S., HUTCHINGS K. & BM CLARK 2011 Environmental assessment for the abalone (*Haliotis midae*) ranching right application (phase 2) of really useful investments no.72 (PTY) Ltd. in the Northern Cape (area NC2).
- HUTCHINGS, K. & CLARK, B.M. 2011 Review of Strategic Environmental Assessment: “The Identification of Sea-Based Sites Suitable for Marine Aquaculture Development Zones in South Africa” Report prepared for the Department of Agriculture, Forestry and Fisheries.
- HUTCHINGS, K. & CLARK, B.M. 2011 Saldanha reverse osmosis desalination plant: benthic macrofauna and sediment baseline survey. Report prepared for CSIR (Stellenbosch).
- CLARK, B.M & K. HUTCHINGS. 2011 Report on Fish Sampled In The Century City Wetlands And Canals. Report prepared for Century City Property Owners Association (CPOA).
- HUTCHINGS, K. CLARK B.M. and C. van Zyl 2010. Marine water quality monitoring report for the reverse osmosis desalination plant at Myoli beach, Sedgefield. Report prepared for Cape Environmental Assessment Practitioners.
- HUTCHINGS, K. & CLARK, B.M. 2010. Assessment of the effects of heavy metal accumulation from land based sources on the Diep estuary. Unpublished report prepared for Department of Environmental Affairs & Development Planning, Western Cape Government by Anchor Environmental Consultants, Cape Town.
- HUTCHINGS, K. & CLARK, B.M. 2010. Assessment of Port Owen marina dredging activities on the Berg River estuarine fish and macrobenthos communities. Unpublished report prepared for the Port Owen Marina Authority, Veldrif.

HUTCHINGS, K, CLARK, B.M and K. TUNLEY 2010 Marine specialist report and impact assessment for the proposed reverse osmosis desalination plant at Plettenberg Bay. Report prepared for Aurecon South Africa (Pty) Ltd.

HUTCHINGS, K. & CLARK, B.M. 2010. Marine specialist impact assessment for a proposed reverse osmosis desalination plant at Port Nolloth. Report prepared for BVi Consulting Engineers (Springbok).

CLARK, B.M, TUNLEY, K., HUTCHINGS, K., ANGEL, A and J. TURPIE 2010 - State of the Bay 2010: Saldanha Bay and Langebaan Lagoon. Report for the Saldanha Bay Water Quality Trust.

CLARK, B.M., PULFRICH, A., and K. HUTCHINGS 2010 - Sandy beach and rocky intertidal monitoring studies in the Bogenfels and MA1 mining licence areas, Namibia. 2010 monitoring report. Report for Namdeb Diamond Corporation, Namibia.

CLARK, B., ORR, K and K. HUTCHINGS 2009 - Cape Town City Council Coastal Monitoring Programme: Situation Assessment. Report to the City of Cape Town.

HUTCHINGS, K., and B.M. CLARK 2009 Report on fish sampled in the century city wetlands and canals, 18-20 February and 5-6 March 2009. Report to the Century City Property Management Company.

HUTCHINGS, K., and B.M. CLARK 2009 - Draft environmental assessment report and rehabilitation plan for the Jakkalsvlei estuary. Report for Jeffaries & Green (Pty) Ltd.

TURPIE, J.K., CLARK, B.M., HUTCHINGS, K., ORR, K.K. and J. DE WET 2009 - Ecology, value and management of the Kogelberg Coast. Report for WWF-CAPE Marine Programme.

CLARK, B.M., ORR, K.K., HUTCHINGS, K., ANGEL, A and J. TURPIE 2009 - State of the Bay 2009: Saldanha Bay and Langebaan Lagoon. Report for the Saldanha Bay Water quality Trust.

HOLLYWOOD C. and K. HUTCHINGS 2009 - West coast rock lobster (WCRL) 2008/2009 recreational fishery telephone survey report. Report for Marine and Coastal Management.

HUTCHINGS, K., and B.M. CLARK 2009 Baseline report on the status and sensitivity of the coastal marine environment off Oudekraal on the Cape Peninsula, with notes on developmental constraints. Report prepared for Doug Jeffery Environmental Consultants.

HUTCHINGS, K, CLARK, B.M and K. TUNLEY 2009. Baseline report on the marine ecology and impact assessment of proposed residential development at Partridge Point on the Cape Peninsula. Report for Chand Environmental Consulting.

HUTCHINGS, K., and B.M. CLARK 2009. Marine specialist baseline report and impact assessment of a proposed reverse osmosis desalinization plant at Myoli beach, Sedgefield. Report prepared for Cape Environmental Assessment Practitioners.

CLARK, B.M., PULFRICH, A., and K. HUTCHINGS 2009 - Sandy beach and rocky intertidal monitoring studies in the Bogenfels mining licence area, Namibia. 2009 monitoring report. Report for Namdeb Diamond Corporation, Namibia.

HUTCHINGS, K., HOLLYWOOD, C., and B. M. CLARK 2008. Training manual for sea going fisheries observers. Compiled to facilitate deployment of scientific fisheries observers on behalf of Marine and Coastal Management (DEAT Cape Town).

HUTCHINGS, K., HOLLYWOOD, C., and B. M. CLARK 2008. Training manual for shore based fisheries observers. Compiled to facilitate deployment of scientific fisheries observers on behalf of Marine and Coastal Management (DEAT Cape Town).

CLARK, B., TURPIE, J. and K. HUTCHINGS 2008 – Olifants Estuary Management Plan Part 1: Situation assessment. Report to Cape Nature and the CAPE Estuary Management Programme.

CLARK, B., TURPIE, J. and K. HUTCHINGS 2008 – Olifants Estuary Management Plan Part 2: Management Plan. Report to Cape Nature and the CAPE Estuary Management Programme.

HUTCHINGS, K. and B. M. CLARK 2008 - Environmental assessment of Port Nolloth Seafarm's abalone (*Haliotis midae*) ranching operation. Report for: Marine and Coastal Management.

CLARK, B., TURPIE, J. and K. HUTCHINGS 2008 – Berg River Estuary Management Plan Part 1: Situation assessment. Report to Cape Nature and the CAPE Estuary Management Programme.

CLARK, B., TURPIE, J. and K. HUTCHINGS 2008 – Berg River Estuary Management Plan Part 2: Management Plan. Report to Cape Nature and the CAPE Estuary Management Programme.

CLARK, B.M., PULFRICH, A., and K. HUTCHINGS 2008 - Sandy beach and rocky intertidal monitoring studies in the Bogenfels mining licence area, Namibia. 2008 monitoring report. Report for Namdeb Diamond Corporation, Namibia.

HUTCHINGS, K., CLARK, B. M & E.M. YELD 2007 - Environmental overview study for exploration oil and gas drilling in the shallow water Tano block Ghana. Prepared for: TULLOW OIL PLC.

- CLARK, B.M., HUTCHINGS, K., JOSKE, M. & A. DUFFEL-CANHAM 2007 - Submerged macrophytes and macroalgae in the Berg River Estuary. Report compiled for the Department of Water Affairs and Forestry.
- CLARK, B.M., PULFRICH, A., and K. HUTCHINGS 2007 - Sandy beach and rocky intertidal monitoring studies in the Bogenfels mining licence area, Namibia. 2007 monitoring report. Report for Namdeb Diamond Corporation, Namibia.
- HUTCHINGS, K., CLARK, B., STEFFANI, N. and R. ANDERSON 2007 – Identification of communities, biotopes and species in the offshore areas and along the shoreline and in the shallow subtidal areas in BCLME region:1. Angola Field Survey Report. Prepared for Benguela Environment Fisheries Interaction and Training Programme (BENEFIT).
- HUTCHINGS, K and A. DUFFEL-CANHAM 2007 - Acute toxicity of treated ballast water discharge from the Resource Ballast Technology reactor to South African marine and estuarine organisms. Report compiled for Resource Ballast Technology.
- HUTCHINGS, K., ATKINSON, L. J. and B. M. CLARK 2006 - Sampling and Identification of Marine Fauna and Flora in the Port of Port Elizabeth. Report compiled for the National Ports Authority.
- CLARK, B. M., BENNO, B.L., HUTCHINGS, K., KAMUGISHA, S., LUGOMELA, G., LUKAMBUZI, L., MATERU, E. and D. SALUM. 2006 - IUCN Water and Nature Initiative, Pangani River Basin Flow Assessment Initiative, Estuarine Health Assessment. Prepared for: Pangani Basin Water Office.
- CLARK, B., WANLESS, R. and K. HUTCHINGS 2006 - Data management facility for the South African National Antarctica Programme (SANAP): Investigation of stakeholder requirements and an assessment of potential host institutions. Report compiled for the Department of Science and Technology.
- HUTCHINGS, K., GRIFFITHS, M. H. and J. G. FIELD 2004, 2005 – Taxonomy, Biology and Management of *Umbrina* species. Year-end reports for the Department of Environmental Affairs and Tourism, Marine and Coastal Management.
- HUTCHINGS, K., and B.M. CLARK 2005 - Due diligence study on Unagi International Plc/Sa eels (Pty.) Ltd. proposed eel aquaculture and processing facility at Dimbaza, Eastern Cape. Report prepared for the National Empowerment Fund.
- CLARK, B., HUTCHINGS, K. and D. GAYNOR 2005 - Table Mountain National Park - Fisheries and Environmental Monitoring Programme. Interim report on the first three months data collection. Report compiled for WWF SA and SANP.

- ATKINSON, L. HUTCHINGS, K., CLARK, B. M., and J. K. TURPIE – 2006 Saldanha Bay, State of the Bay Technical Report. Compiled for the Saldanha Bay Water Quality Trust.
- HUTCHINGS, K. 2005 - Preliminary assessment of the potential impacts of a boat launching site on the marine and estuarine environment at Mbotyi River mouth. Report compiled for EMROSS consulting CC.
- HUTCHINGS, K. and S. J. LAMBERTH 2000 - Management and Socio-economic Considerations for the Gill and Beach-seine Net Fisheries on the West and South-western Coasts of South Africa. Final report for the Department of Environmental Affairs and Tourism Marine and Coastal Management.
- HUTCHINGS, K. 2000 – Marine Gill and Beach-seine Net Fishing Activity in the Northern and Western Cape Provinces. Report compiled for the Subsistence General Fisheries Working Group, Department of Environmental Affairs and Tourism, Marine and Coastal Management.
- CLARK, B., HUTCHINGS, K., and K. PROCHAZKA 1999 – Investigation into the impacts of bait collection of wonder worm *Marphysa sp.* in the Western Cape. Report for the Department of Environmental Affairs and Tourism, Marine and Coastal Management.

CURRICULUM VITAE

AMY WRIGHT

ACADEMIC QUALIFICATIONS:

MSc Biological Sciences, 2017, University of Cape Town

BSc (Hons) Biological Sciences, 2013, University of Cape Town

BSc Marine Biology and Applied Biology, 2012, University of Cape Town

LANGUAGE PROFICIENCY: English (Excellent), Afrikaans (Basic)

COUNTRY EXPERIENCE: South Africa

POSTAL ADDRESS: 8 Steenberg House, Silverwood Close, Tokai 7945

PHONE: +27-21-7013420

E-MAIL: amy@anchorenvironmental.co.za

FAX: +27 (0)-21-7015280

EMPLOYMENT HISTORY: 2017-Present –Marine Consultant (Anchor Environmental Consultants)

2016 – Co-supervisor for BSc Honours thesis (UCT)

2014 – Research assistant (Department of Biological Sciences, UCT)

2014 – Intern Consultant (Capricorn Marine Environmental)

SUMMARY PROFILE

Amy has an MSc in biological sciences and BSc. Hons degrees in marine biology and applied biology from the University of Cape Town. She consults on research projects focusing on the maintenance and conservation of marine and estuarine ecosystems. Amy specialises in hydrodynamic modelling of effluent into both freshwater and marine systems to inform water regulatory guideline compliance, pipeline design, monitoring strategy and systems protection. Her interests also include fisheries management and large scale systems ecology. Many of her projects involve monitoring and evaluation across varying economic sectors, including biophysical and socio-economic research in the assessment of human impacts on temperate and tropical coastal regions of South Africa and further afield. She is also involved in monitoring program development as well as data collection, management and analysis as well as capacity building, and has worked as an invertebrate taxonomist. She is the author of scientific publications in class A scientific journals as well as numerous popular articles in the free press.

SKILLS: CORMIX, Deltares MAMPEC, Delft 3D SWAN, Ancylos MOM, Statistica, SPSS, QGIS, BGIS, Primer-E, BEAM-Visat (ESA remote sensing software), OceanView, R and R-Studio, Python, Adobe Photoshop, MS suite

SELECT PROJECT EXPERIENCE

Period	Country	Clients	Project, Tasks
2019	South Africa	Doug Jeffery Environmental Consultants	Lead author; dispersion modelling Delft 3D and CORMIX modelling and specialist marine impact studies for a proposed Atlantic Salmon farm the Port of Cape Town.
2019	Mauritius	International Ocean Institute; Mauritius Oceanography Institute	Dispersion modelling Development of a Deltares MAMPEC model to capture marine pollutant dispersion resulting from in-water hull cleaning in Port Louis.
2019	Mozambique	JG Afrika	Project lead Estuarine specialist report for proposed MOZAL Matola river pipeline.
2018-2019	South Africa	Planet Capital (Pty) Ltd	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of land based aquaculture effluent.
2018	South Africa	NuLeaf Planning & Environmental	Lead author Marine impact assessment for the establishment of an aquaculture development zone in Amatikulu Estuary, Kwa-Zulu Natal.
2018	South Africa	Lwandle Technologies (Pty) Ltd	Lead author City of Cape Town small scale desalination plant monitoring program - marine ecology baseline report.
2018	South Africa	Marine Living Resources Fund, Department Of Agriculture, Forestry And Fisheries	Effluent modelling MAMPEC and Ancylus MOM dispersion modelling of finfish cage aquaculture in Algoa Bay to determine impacts and carrying capacity.
2018	South Africa	Marine Living Resources Fund, Department Of Agriculture, Forestry And Fisheries	Co-author Algoa Bay Sea-Based Aquaculture Development Zone: Basic Assessment Process In Terms Of The National Environmental Management Act, 1998 (Act No. 107 Of 1998) - Pre-Application Basic Assessment Report Appendix D: Marine Specialist Impact Assessment.
2018	South Africa	SeaVuna Fishing Company (Pty) Ltd	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of brine effluent into the Port of Mossel Bay as per the awarded CWDP.
2018	South Africa	V&A Waterfront	Lead author; project manager Development and implementation of an Environmental Monitoring in accordance With CWDP 2013/002/WC/Victoria & Alfred.
2018	South Africa	Chand Environmental Consultants	Lead author Marine specialist study and impact assessment for a CWDP application for a reverse osmosis plant at the Cape Town International Convention Centre (CTICC).
2018	South Africa	Sea Harvest	Lead author; effluent modelling; monitoring plan development CORMIX modelling of effluent outfall, baseline study and

			impact assessment for the discharge of brine effluent into Saldanha Bay as per the awarded CWDP. Development and undertaking of monitoring program (sediment, water quality and benthic macrofauna).
2018	South Africa	City of uMhlathuze	Lead author Estuarine ecology impact assessment for construction of a new bridge over the Mzingazi Canal at the Richards Bay Waterfront.
2018	South Africa	Turnkey Water Solutions, Hessequa Local Municipality	Co-author Marine ecology impact assessment and dispersion modelling for the discharge of brine from an RO Plant in the Breede River Estuary.
2018	South Africa	Khula Environmental Services	Lead author Marine ecology impact assessment for the maintenance management plan for the rock revetment at East Pier, Port of Cape Town.
2018-2021	South Africa	Mhlathuze Water	Project manager Consultant appointed to carry out the Marine Environment Impact Assessment for Mhlathuze Water Effluent Pipelines, in Richards Bay (MW/11/2017).
2018	South Africa	WSP, Environment & Energy, Africa	Lead author Marine ecology impact assessment for sea water cooling system intake discharge in the Port of Cape Town.
2018	South Africa	G7 Renewable Energies (Pty) Ltd	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of brine effluent into Gordon's Bay. Preparation of the Coastal Water Discharge Permit for Coastal Waters Discharge Permit issued by the Department of Environmental Affairs: Oceans and Coasts; registration as a Water Services Intermediately with the Department of Water and Sanitation; registration as a private sector water provision intervention under the City of Cape Town S30A Directive.
2018	Mozambique	JG Afrika	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of brine effluent into Maputo Bay.
2018	South Africa	SRK Consulting	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of brine effluent into Saldanha Bay. Preparation of the Coastal Water Discharge Permit for Coastal Waters Discharge Permit issued by the Department of Environmental Affairs: Oceans and Coasts.
2018	South Africa	Sun International, Table Bay Hotel; GCX Analytics GCX Water	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of brine effluent into Table Bay. Preparation of the Coastal Water Discharge Permit for Coastal Waters Discharge Permit issued by the Department of Environmental Affairs: Oceans and Coasts; registration as a Water Services Intermediately with the Department of Water and Sanitation; registration as a private sector water provision intervention under the City

			of Cape Town S30A Directive.
2018	South Africa	ArcelorMittal Saldanha	Lead author; effluent modelling CORMIX modelling of effluent outfall, baseline study and impact assessment for the discharge of brine effluent into Saldanha Bay. Preparation of the Coastal Water Discharge Permit for Coastal Waters Discharge Permit issued by the Department of Environmental Affairs: Oceans and Coasts.
2018	South Africa	Mainport Africa	Co-author Assessment of biofouling community collected from <i>NM Cherry Blossom</i> .
2017	South Africa	Viking Fisheries	Lead author Socio-economic assessment of the impacts in a reduction of quota on a small commercial fishery.
2017	South Africa	SRK Consulting	Co-author Tormin Mine EIA assessment, West Coast, South Africa; marine specialist report: baseline scoping report and marine environmental impact assessment.
2017	South Africa	GIBB	Lead author Marine specialist report for Table Bay and the Port of Cape Town; review of the known data regarding the oceanographic and ecological conditions of Table Bay and the Port of Cape Town.
2017	South Africa	GIBB	Effluent modelling, co-author CORMIX modelling of effluent outfall for storm surge scenario for Cape Recife WWTW.
2017	South Africa	Oiltanking MOGS (Pty.) Ltd. and Advisian	Lead author Impact assessment for the proposed expansion of the crude oil jetty and construction of the associated pipeline system, Saldanha Bay, Western Cape; marine specialist report: baseline scoping report and marine environmental impact assessment
2017	South Africa	Nsovo Environmental Consulting	Project manager and lead author Impact assessment for the proposed design and construction of the IOT stormwater system Saldanha Bay, Western Cape; marine specialist report: baseline scoping report and marine environmental impact assessment.
2017	South Africa	Eco Impact Legal Consulting (Pty) Ltd.	Lead author Estuarine specialist study and impact assessment for the proposed expansion of Kliphoek Resort, Velddrif.
2017	South Africa	Advisian, City of Cape Town	Co-author Marine ecology impact assessments for eleven desalination plants for the Cape Town Emergency Water Resilience Project
2017, 2018	South Africa	Saldanha Bay Water Quality Trust	Field research, data analysis, glossy report production The State of Saldanha Bay and Langebaan Lagoon; ongoing annual ecological monitoring of Saldanha Bay and Langebaan Lagoon.
2017	Namibia	NAMDEB	Taxonomy Annual benthic sampling campaign: NAMDEB's offshore environmental monitoring programme in the midwater

			mining license area.
2017	Namibia	De Beers Marine Namibia	Taxonomy, data analysis Annual benthic sampling campaign: De Beers Marine Namibia environmental monitoring programme in the Atlantic 1 mining license area for 2016.
2017	Namibia	De Beers Marine Namibia	Taxonomy Annual benthic sampling campaign: De Beers Marine Namibia environmental monitoring programme in the Atlantic 1 mining license area for 2015.

PUBLICATION RECORD

Scientific papers

- Wright, A.G.**, Botha, T.P.A. & Griffiths, C.L. 2019. Population structure and morphology of South African deep-water parapagurid hermit crabs. *Acta Zoologica*: 1–15.
- Pillay, D., Moyo, R., **Wright, A.G.** 2018. Density- vs trait-mediated responses of a symbiont (*Betaeus jucundus*) to burrows of a burrowing crustacean (*Callichirus kraussi*). *Estuarine, Coastal and Shelf Science* 209: 183-190
- Wright, A.G.**, Perez-Portela, R., Griffiths, C.L. 2016. Determining the correct identity of South African Marthasterias (Echinodermata: Asteroidea). *African Journal of Marine Science* 8(3): 443-455

Botha, T.P.A., **Wright, A.G.** & Griffiths, C.L. 2018. Housing options for hermits – implications of shell and pseudoshell use by deep-water hermit crabs (in prep.)

Thesis

Wright, A.G. 2017. Deep water parapagurid hermit crabs: their distribution, abundance population structure and associations in the Southern Benguela. MSc Thesis, University of Cape Town, 120 pp.

References available on request

CURRICULUM VITAE

Jessica Dawson

NATIONALITY: South African, dual Irish citizenship

ACADEMIC QUALIFICATIONS:

PhD Estuarine ecology, 2019, University of Cape Town

MSc Marine Biology, 2012, University of Cape Town

BSc (Hons) Biological Sciences, 2009, University of Cape Town

BSc Marine Biology and Oceanography, 2008, University of Cape Town

OTHER QUALIFICATIONS:

Medically in date scientific/commercial class IV diver

MEMBERSHIP OF PROFESSIONAL BODIES/ORGANISATIONS:

Member of The Golden Key Honour Society (2008-)

LANGUAGE PROFICIENCY: English (Excellent), Afrikaans (Conversational)

COUNTRY EXPERIENCE: South Africa, Namibia

POSTAL ADDRESS: 8 Steenberg House, Silverwood Close, Tokai 7945

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EMPLOYMENT HISTORY:

2018-Present – Marine Consultant, Anchor Environmental Consultants

2015 & 2013 – Co-supervisor for BSc Honours thesis (UCT)

2008-2018 – Biological Sciences Practical demonstrator (Part time)

2006-2008 – Part time Environmental research assistant, Rustenburg Regional Environmental Department, Anglo Platinum

SUMMARY PROFILE:

Jessica has recently completed her PhD in estuarine ecology at the University of Cape Town and has a background in biological sciences, marine biology, estuarine community studies, ecology and taxonomy, and obtained her commercial divers licence in 2009. Her academic training has enabled

her to acquire skills in a wide variety of scientific disciplines, exposing her to a broad array of scientific methods. More specifically, Jessica has worked on the taxonomic descriptions of new species (BSc Hon), the effects of grazers on community structure of soft-sediment and rocky shore communities (BSc Hon and MSc) and the indirect effects of the presence of large herbivore species on estuarine benthic communities and food web structure (PhD). During her studies she has collaborated with both international and local researchers, spending a short stint as a research assistant for the Smithsonian Environmental Research Centre in the USA, as well as working with academic teams from several South African universities. Her training has equipped her to consult on a wide variety of research and consulting projects incorporating the conservation of intertidal, sub-tidal, marine, and estuarine ecosystems. Jessica has co-authored four peer-reviewed articles in well recognised scientific journals as well as being approached to write a book review for the Quarterly Review of Biology.

SKILLS: Proficient in MS Office Suite - Word, Excel and PowerPoint;
Experience with - Access, R Studio, MixSIAR, SPSS, Primer and Photoshop

PROJECT EXPERIENCE

Period	Country	Client	Project, Tasks
2019	South Africa	Lwandle Technologies (Pty) Ltd	City of Cape Town small scale desalination plant monitoring program - marine ecology operational phase report. Analysis of benthic macrofauna data, statistical analysis and report compilation
2019	Namibia	Pisces Environmental	Sandy beach macrofauna and sediment quality monitoring programme for the Elizabeth Bay Mining Licence Area, Namibia. Intertidal Sandy beach field surveys – collect and preserve invertebrate samples.
2019	South Africa	Saldanha Bay Water Quality Forum Trust (SBWQMFT)	Annual State of the Bay Monitoring programme (Saldanha Bay). Invertebrate specialist - collection, preservation and identification of invertebrates.
2018-present	South Africa	Mhlathuze Water	Toxicity testing, water, sediment and flora and fauna monitoring for Mhlathuze Water Effluent Pipelines, in Richards Bay, South Africa Laboratory analysis identifying benthic invertebrate macrofauna, analysis of data, statistical analysis and report compilation
2018-present	South Africa	Transnet, Bivalve Shellfish Farmers association Saldanha	Marine environment impact assessment effluent pipelines in Richards bay Field work – sample collection

Period	Country	Client	Project, Tasks
2018-present	Namibia	De Beers Marine Namibia	De Beers Marine Namibia Environmental Monitoring Programme in the Atlantic 1 Mining License Area: Annual Benthic Sampling Campaign Laboratory analysis identifying benthic invertebrate macrofauna
2018	South Africa	Marine Living Resources Fund, Department Of Agriculture, Forestry And Fisheries	Algoa Bay sea-based aquaculture development zone - Benthic mapping report Laboratory analysis identifying benthic invertebrate macrofauna, analysis of data, statistical analysis and report compilation

STUDENT Co-SUPERVISION

Year	Name	Institution	Degree	Thesis title
2015	Peter Jean Roberts	UCT	BSc(Hon)	Effects of Hippo dung on the benthic macrofauna of St. Lucia Estuary, South Africa
2013	Robyn Payne	UCT	BSc(Hon)	Effects of flamingo foraging plasticity on intertidal sandflat macrofaunal assemblages

PUBLICATION RECORD

Scientific papers

- Dawson, J., Pillay, D., Roberts, P. J. & Perissinotto, R. (2016). Declines in benthic macroinvertebrate community metrics and microphytobenthic biomass in an estuarine lake following enrichment by hippo dung. *Sci. Rep.* 6, 37359
- Dawson, J. & Griffiths, C. (2012). Revision of the crown crabs, genus *Hymenosoma* (Crustacea: Hymenosomatidae), of South Africa. *African Nat. Hist.* 8, 16–29.
- Dawson, J. & Pillay, D. (2011). Influence of starfish grazing on lagoonal microalgal communities: non-competitive mechanisms for unimodal effects on diversity. *Mar. Ecol. Prog. Ser.* 435, 75–82.
- Pillay, D., Branch, G. M., Dawson, J. & Henry, D. (2011). Contrasting effects of ecosystem engineering by the cordgrass *Spartina maritima* and the sandprawn *Callinassa kraussi* in a marine-dominated lagoon. *Estuar. Coast. Shelf Sci.* 91, 169–176.

Theses

- Dawson, J. (2019). Terrestrial-aquatic transfers by hippopotamus (*Hippopotamus amphibius*): effects on food web and benthic community structure of the St Lucia Estuary, iSimangaliso Wetland Park, World Heritage Site, South Africa. PhD Thesis, University of Cape Town, 250 pp.
- Dawson, J. (2012). The effects of grazing by starfish (*Parvulastra exigua*) on producer and consumer assemblages in intertidal sandflats. MSc Thesis, University of Cape Town, 111 pp.

Professional recognition

Invited to review a book for The Quarterly Review of Biology – Call of Nature: The Secret Life of Dung by Richard Jones (2018).

References available on request

Curriculum Vitae

Erika A. Brown

Languages: English (excellent), French (basic), Spanish (basic)

Present Occupation: Marine ecologist, GIS Specialist and consultant, Anchor Environmental Consultants (Pty), Ltd.

Work Address: 8 Steenberg House, Silverwood Close, Tokai 7945, South Africa.

Tel. (021) 701 3420 Fax (021) 701 5280

Email: erika@anchorencvironmental.co.za

Summary Profile

Erika has a natural passion for marine environments having spent most of her free time in childhood on or in the Chesapeake Bay and its tributaries. As a young adult her interests lead her to coastal upwelling environments in Northern California and Alaska where she studied at San Francisco State University and gained work experience with the Department of Fish and Game, California and the United States Geological Survey, BSO, Alaska, in the field and in cartography/GIS related projects. It was during this time that her interest in marine micro-organisms and large scale oceanographic processes was piqued and prompted her MSc. work in Southern Ocean phytoplankton ecology and carbon sequestration at the University of Cape Town. All the while, her connection to upwelling systems was sustained and her knowledge of southern Africa fisheries and MPA management bolstered through a research assistant position at the Marine Research Institute, UCT and various capacity building projects whilst studying. A permanent resident of South Africa, her current work at Anchor Environmental is a composite of marine mapping and spatial planning, invertebrate taxonomy, quantitative data analysis and scientific writing to guide marine conservation and more sustainable coastal and offshore economic development in southern Africa.

Academic Qualifications

Year	Institution	Degree Attained	Thesis/Project Title	Awards
2009-2012	University of Cape Town	MSc. Biological Oceanography	Phytoplankton community structure, productivity, and nitrogen metabolism as a function of light availability in the Atlantic sector of the Southern Ocean.	Postgraduate CSIR Fellowship, SOCCO funded Research
2008	University of Cape Town	BSc. Honours Marine Biology	Project 1: Application of the cross-wavelet transform coherency analysis for detecting regime shifts in the southern Benguela marine ecosystem: 1950 – 2005. Project 2: Grazer effect on community succession in temperate, wave-exposed vs. wave-sheltered rocky shores of South Africa.	Andrew W. Mellon Foundation grant program
2005-2007	University of Cape Town	BSc. Marine Biology and Oceanography	Marine invertebrate larval settlement and recruit along the west coast of South Africa.	Andrew W. Mellon Foundation grant program
1997-2001	San Francisco State University	BA. GIS, Cartography and Geography	Project 1: Land use practices and agricultural impacts on Pine Gulch Creek Watershed, Bolinas California. Project 2: Climatology, avg. annual rainfall and solar index for Western Cape wine growing regions according to estate locations.	

Employment

Date	Organisation	Position	Responsibilities
June 2015-Present	Anchor Environmental cc	Marine Ecologist GIS Technician Consultant	Marine and terrestrial GIS specialist, invertebrate taxonomy, lab management, data analysis, environmental and biodiversity assessments and baseline reports.
2013-2015	Yoga Boom & Get Physical	Own Business Teacher/Trainer	YB: Taught children, 3 -12 yrs. old, yoga and life skills. GP: Outdoor personal fitness training. Business administration and advertising.
2012 -2013	Department of Biodiversity and Conservation Biology, UWC & Department Biological Sciences, UCT	Research Assistant	Renewable energy research, benefits of large scale macroalgae aquaculture for biofuel production and climate change mitigation, project management, lab and in situ growth rate experiments, data analysis, report writing.
2010-2011	Oceans 7, IndiSeas, SAEON	Contract work-	Development of a marine-eco tour in Table Bay, created an

Date	Organisation	Position	Responsibilities
	Egagsini node MaRE, UCT	capacity building	extensive reference data base/digital library, organized 2 scientific conferences, completed a web-based educational tool for marine offshore systems around southern Africa, organized and led Applied Marine Science post-graduate student fieldtrips.
2009	Antarctic Expedition, CSIR's Southern Ocean Carbon and Climate Observatory Program aboard the <i>MV SA Agulhas</i>	Oceanographic Research Cruise Organizer	Managed logistics pertaining to cruise organization including all necessary chemical handling and transportation paperwork as well as ordering and packing all relevant equipment, supplies, chemicals and spares to ensure a successful scientific cruise.
2006 -2008	Marine Research Institute, UCT	Research Assistant	Assisted in an ongoing invertebrate larval settlement and recruit project along the west coast of South Africa. Responsibilities included fieldwork on every new moon spring tide at six different sites spanning 150km, microscope identification and quantification of larval samples, deployment and collection of temperature loggers at each site for continuous temperature data, preparation and maintenance of larval traps and moorings, data entry and maintaining an up-to-date database.
2004	University of Alaska Southeast and Glacier Bay National Park	Research Assistant	Assisted in laboratory and field work concerning Dungeness crab (<i>Cancer magister</i>) larval recruitment at Glacier Bay National Park, Gustavus, Alaska.
2004	United States Geological Survey, BSO Juneau, Alaska	Cartographer/ GIS Technician	Created series of vegetation maps of the Arctic tundra which are a part of a long-term study LAII (Land-Atmospheric-Ice-Interactions). Carbon flux was one of many aspects being mapped. Utilized TerraScan to verify and readjust mapped area boundaries on thousands of satellite images of the area of interest. Utilized ERDAS Imagine for an intertidal zone mapping project in progress at Glacier Bay National Park.
2003	California Department of Fish and Game & San Francisco State University	Cartographer/ GIS Technician	Created a vegetation database and series of riparian and watershed vegetation maps and field survey maps in ArcView 3.2 for San Pedro Creek Watershed Assessment & Enhancement Plan.

Publications

S. Thomalla, E. Kean, M.-J. Gibberd, R. Barlow, M. Lucas, 2015 (submitted). *Deep-Sea Resch I*, Photosynthesis vs. irradiance relationships in the Atlantic sector of the Southern Ocean.

A.O. Amosu, D.V. Robertson-Andersson, E. Kean, G.W. Maneveldt, Cyster L. 2015 (submitted). *Intl. Jrnal. of Agrict. & Bio.* Biofiltering and uptake of dissolved nutrients by *Ulva armoricana* (Chlorophyta) in a land-based aquaculture system.

A.O. Amosu, D.V. Robertson-Andersson, G.W. Maneveldt, E. Kean 2014. *Intl. Jrnal. of Enviro. Rsch.*, Aquaculture benefits of macroalgae for green energy production and climate change mitigation.

M.-J. Gibberd, E. Kean, R. Barlow, S. Thomalla, M. Lucas 2013. *Deep-Sea Rsch. I*, Phytoplankton chemotaxonomy in the Atlantic sector of the Southern Ocean during late summer 2009.

Experience

2008-2009 **Oceanographic Research** Antarctic Expedition, 76 days at sea, participating marine scientist in CSIR's Southern Ocean Carbon and Climate Observatory programme aboard the *MV SA Agulhas* where in addition to assisting in all of the biological and oceanographic logistics and scientific sampling throughout the cruise, conducted my own experimental research in primary production and nitrogen metabolism as a function of light availability for my Master's thesis. The cruise covered six oceanographic regions in the south Atlantic sector of the Southern Ocean.

2004 **Oceanographic Research** Glacier Bay Expedition, 14 days at sea, volunteer scientific technician, assisted in CTD casts, sediment grabs, and ADCP profiling analysis aboard the *MV Alaskan Gyre*, USGS Alaska Science Centre projects were looking

Experience continued

at factors affecting seasonal and regional patterns of surface water oceanographic properties within a fjord estuarine system and seafloor habitat mapping and classification in Glacier Bay, Alaska: Phase 1 & 2, 1996-2004

2004 **Geography research project.** Researched and reported on land use practices surrounding Pine Gulch Creek in Bolinas, CA. Focused on agriculture in the area in relation to the watershed. Worked with local hydrologist at Point Reyes National Seashore as well as several of the farm managers in the area. Utilized ArcView 3.2 for map creations and collected many historical maps.

Skills

Analytical/Technical: (experienced) GIS ArcMap 10.1, Ocean Data View (ODV), Statistica, PRIMER P6, PERManova, Macromedia Freehand 9, ERDAS Imagine, TerraScan, Zotero, Microsoft Office Suite, (introductory) Matlab, Matlab Wavelet analysis, CHEMTAX, ROMS, and Corel Draw

Laboratory: On board dual-labelled ^{15}N and ^{13}C new and regenerated production measurements, ^{13}C primary production measurements, nutrient analysis including the determination of nitrates, silicates, phosphates, urea, ammonia, dissolved oxygen, and salinity in collected water samples. Filtering of sea water for the collection of POC/PIC (Particulate Organic/Inorganic Carbon), BSi (Biogenic Silicate), HPLC (high performance liquid chromatography), and chlorophyll-a concentration.

Sea going: CTD, XBT, and drifter deployment, ADCP, sediment grabs, and deploying, setting, and retrieving various fish/shellfish traps and moorings.

Conferences, Workshops & Short Courses: SAMS 2008 poster presentation, IMBER IMBIZO I contributor to work presented by Dr. Astrid Jarre 2008, CSIR M.Sc. presentation 2009, ACCESS Workshop on the Seasonal Cycle of the Carbon-Climate System in the Southern Ocean 23-25 August 2010, Primer Permutational Analysis of Variance, Regional Oceanographic Modelling (ROMS) & MatLab, GeoReferencing and Remote Sensing-GEONETCAST and the monitoring of African marine ecosystems.

Research Interests

Marine conservation and education, marine spatial planning and associated mapping, management of fisheries and MPAs, renewable energy, marine algal culture as an alternative, sustainable energy source, biofuels and alternative energy resources in general as a means of reducing carbon footprint. Southern Ocean ecosystems, phytoplankton ecology, biogeochemistry and physical processes on every scale; upwelling systems; environmental and anthropogenic forcing and biological shifts in marine ecosystems, subsequent ecosystem responses such as productivity, diversity and ultimately carbon export; impact of climate change on physical and biological processes over time.

History

Outdoor Fitness Trainer, Get Physical-my own quarter-time business, Kommetjie, RSA	2008-2015
Volunteer Coordinator, quarter-time for i-to-i South Africa, Kommetjie, RSA	2007-2008
Eco Adventure Tour Guide for Core African Experiences, Cape Town, RSA	2005- 2007
Fitness Trainer- Gym and Tonic, Cape Town, RSA	2005
Server- The Meeting House Restaurant, San Francisco, USA	1999-2003
Volunteer Social Worker- Asociacion Esperanza del Futuro, Tola, Nicaragua	2001
Harvester and Propagation Apprentice- Star Route Farm, Bolinas, USA	2000 - 2001
Crew Person- St. Bart's Yachts, Charleston, USA. St. Maarten Is. to Rio de Janeiro, Brazil	Winter 1998

Certifications & Leisure Activities

Yoga-4-Kids Teacher Training certification, International Sports Science Association fitness trainer certification, PADI SCUBA open water certified, mountain biking, raced mountain bikes at the sport level throughout California, completed 7 triathlons, completed the Honolulu Marathon, snorkelling, surfing, yoga, hiking, camping, reading, soap making, fynbos and coastal foraging, and being a mom!.

CURRICULUM VITAE (CV): DR MEGAN LAIRD

Company: Anchor Environmental Consultants

Position: Senior Marine Consultant, Marine Biologist

Countries of Work Experience: South Africa, Namibia, Zimbabwe, Zambia, Mozambique

Date of Birth: 24 February 1986

Nationality: South African

Languages: English: speaking, reading and writing – good
 Afrikaans: speaking, reading and writing – fair

Education: University of Cape Town: BSc (2006), BSc (Hons) (2007), PhD (2013)

Other Training:

- 2015: Category B Skipper's License with rescue and diving endorsement
- 2014: CorMix Effluent Plume Analysis course
- 2011: Commercial Class IV Dive Supervisor course
- 2010: Histology Training course

Employment Record:

Date	Employer	Position held	Experience
May 2013 - present	Anchor Environmental Consultants	Senior marine consultant	Toxicity testing, effluent plume analysis, Coastal Water Discharge Permits, scientific diving, marine impact assessments, invertebrate studies and baseline reports
Jan 2013 – April 2013	CapFish	Marine Mammal Observer, Environmental Control Officer & Fisheries Liaison Officer	MMO, ECO and FLO on multi-beam and 3D seismic survey vessels off the coasts of South Africa and Namibia
July 2010 – April 2013	Pisces Environmental Services	Field Biologist & report writer	Marine benthic and rocky shore surveys and invertebrate identification in Namibia
July 2008 – April 2013	Noffke Environmental and Technical Services	Scientific diver and lab assistant	Lobster and abalone surveys (FIAS) and marine invertebrate identification
July 2008 – July 2011	Anchor Environmental Consultants	Scientific diver and field biologist	Marine benthic, sandy beach and rocky shore surveys, riverine sampling
July 2007 – Dec 2011	Department of Zoology and Botany, UCT	Senior biology educator	Teaching first and second year university students
July 2007 – Dec 2012	Research Diving Unit, UCT	Scientific diver	Construction, searches, scientific work, equipment deployment and recovery
Jan 2004 – Dec 2004	Pangea Solutions	English teacher	Teaching English to foreigners through an internet based application
Jan 2001 – Dec 2003	Two Oceans Aquarium	Educator	Teaching visitors about marine life

Project Record:**Toxicity testing** – four projects

	Algoa Bay
Toxicity testing	<p>Citation: Hutchings K, Clark BM, Mostert B, Massie V and Laird MC. 2018. <i>Kola Transshipment Zone Environmental Assessment Wet Season Field Survey Report and Ecotoxicology Testing Results</i>. Report no. 1783/3 prepared by Anchor Environmental Consultants for the Biodiversity Company. Pp. 59</p> <p>Location: Republic of Congo, South Africa</p> <p>Main project features: Benthic macrofauna, fish, invertebrates and toxicity testing</p> <p>Positions held: Marine Biologist</p> <p>Activities performed: Toxicity testing and reporting of toxicity results</p>
	<p>Citation: Hutchings K, van Niekerk, Laird MC, Clark BM, Tshingana B, Massie V and R. Button 2018. <i>Marine Specialist Report Monitoring the Impacts of the Reverse Osmosis Desalination Plant on the Piesang Estuary and Nearshore Marine Habitats, Plettenberg Bay</i>. Report no. 1788/1 prepared by Anchor Environmental Consultants for Aurecon South Africa. Pp 85.</p> <p>Location: Plettenberg Bay, South Africa</p> <p>Main project features: Benthic macrofauna, fish, intertidal and subtidal invertebrates, and toxicity testing</p> <p>Positions held: Marine Biologist</p> <p>Activities performed: Field surveys, toxicity testing and reporting of toxicity results</p>
	<p>Citation: Laird MC and Clark BM. 2014. <i>Estuarine Ecology Impact Assessment Report for the Construction of a Floating Dry Dock at the Dormac Repair Quay, Bayhead Dock in the Port of Durban</i>. Report no. 1575 prepared by Anchor Environmental Consultants for WSP Environment and Energy. Pp 69.</p> <p>Location: Port of Durban, South Africa</p> <p>Client: WSP Environment and Energy</p> <p>Main project features: Description of affected environment, sediment toxicity, sea urchin fertilisation toxicity test, impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Experimentation, analysis and report writing</p>
	<p>Citation: Laird MC and Clark BM. 2013. <i>Toxicity of Twelve Water Samples Collected in a Transshipment Area off Beira, Mozambique to Skeletonema costatum and Parechinus angulosus</i>. Report numbers 1444/8 to 1444/12 prepared by Anchor Environmental Consultants for Consultec Consultores Associados Lda. Pp 23.</p> <p>Location: Beira, Mozambique</p> <p>Main project features: Water quality, algal growth inhibition and sea urchin fertilisation toxicity testing</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Experimentation, analysis and report writing</p>

Effluent plume analysis – fourteen projects

Effluent plume analysis	<p>Citation: Laird MC, Wright AG and Clark BM. 2018. <i>Nearfield Modelling and Assessment of Impacts for the Proposed Reverse Osmosis Plant at the Breede River Estuary, South Africa</i>. Specialist Report no. 1799/3 prepared by Anchor Environmental Consultants (Pty) Ltd for Turnkey Water Solutions. Pp 76.</p> <p>Location: Witsand, South Africa</p> <p>Main project features: Effluent plume modelling and impact assessment</p> <p>Positions held: Modeller and lead author</p> <p>Activities performed: Nearfield modelling, report writing, client communications and public meetings</p>
	<p>Citation: Wright AG, Laird MC and Clark BM. 2018. <i>Near Field Modelling and Assessment of Impacts for the proposed Reverse Osmosis Plant at ArcelorMittal Saldanha, Saldanha Bay</i>. Specialist Report no. 1780/5 prepared by Anchor Environmental Consultants (Pty) Ltd for ArcelorMittal South Africa. Pp 94.</p> <p>Location: Saldanha Bay, West Coast, South Africa</p> <p>Main project features: Effluent plume modelling and impact assessment</p> <p>Positions held: Modeller</p> <p>Activities performed: Nearfield modelling guidance and report review</p>
	<p>Citation: Wright AG, Laird MC and Clark BM. 2018. <i>Nearfield modelling and Assessment of Impacts for the Development and Operation of a Reverse Osmosis Desalination Plant for the Table Bay Hotel</i>. Report no. 1782/2 prepared by Anchor Environmental Consultants (Pty) Ltd for The Table Bay Hotel. Pp 99.</p> <p>Location: Table Bay, South Africa</p> <p>Main project features: Effluent plume modelling and impact assessment</p> <p>Positions held: Modeller</p> <p>Activities performed: Nearfield modelling guidance and report review</p>
	<p>Citation: Wright AG, Laird MC and Clark BM. 2018. <i>Nearfield Modelling and Assessment of Impacts for the Proposed Reverse Osmosis Plant at Matola Estuary, Maputo Bay, Mozambique</i>. Report no. 1781/1 prepared by Anchor Environmental Consultants (Pty) Ltd for JG Afrika. Pp 100.</p> <p>Location: Maputo Bay, Mozambique</p> <p>Main project features: Effluent plume modelling and impact assessment</p> <p>Positions held: Modeller</p> <p>Activities performed: Nearfield modelling guidance and report review</p>
	<p>Citation: Wright AG, Laird MC and Clark BM. 2018. <i>Near Field Modelling and Assessment of Impacts for the Mykonos Desalination Plant, Club Mykonos, Langebaan</i>. Specialist Report no. 1785/2 prepared by Anchor Environmental Consultants (Pty) Ltd for SRK Consulting (South Africa) (Pty) Ltd. Pp 96.</p> <p>Location: Langebaan, West Coast, South Africa</p> <p>Main project features: Effluent plume modelling and impact assessment</p> <p>Positions held: Modeller</p> <p>Activities performed: Nearfield modelling guidance and report review</p>
	<p>Citation: Laird M and Clark BM. 2017. <i>Nearfield Effluent Plume Modelling for a Reverse Osmosis Desalination Plant at the Tormin Mine, West Coast, South Africa</i>. Report no. 1743/1 prepared for SRK Consulting South Africa (Pty) Ltd by Anchor Environmental Consultants (Pty) Ltd. Pp 31.</p> <p>Location: West Coast, South Africa</p> <p>Main project features: Effluent plume modelling</p> <p>Positions held: Modeller and lead author</p> <p>Activities performed: Nearfield modelling, report writing and client communications</p>
	<p>Citation: Laird M, Wright AG and Clark BM. 2017. <i>Nearfield Modelling for the Cape Recife Waste Water Treatment Works Food Chain Reactor Upgrade</i>. Report no. 1742/2 prepared by Anchor Environmental Consultants (Pty) Ltd for GIBB. Pp 32.</p> <p>Location: Cape Recife, South Coast, South Africa</p> <p>Main project features: Effluent plume modelling</p> <p>Positions held: Modeller and lead author</p> <p>Activities performed: Nearfield modelling, report writing and client communications</p>

Effluent plume analysis	<p>Citation: Laird M and Clark BM. 2017. <i>Nearfield Modelling of the Expected Treated Sewage Effluent Profile from the Cape Recife Waste Water Treatment Works after Upgrade to Food Chain Reactor Technology</i>. Report no. 1742/1 prepared by Anchor Environmental Consultants for the CEN Integrated Environmental Management Unit. Pp 29.</p> <p>Location: Cape Recife, South Coast, South Africa</p> <p>Main project features: Effluent plume modelling</p> <p>Positions held: Marine biologist, modeller and lead author</p> <p>Activities performed: Field surveys, nearfield modelling, report writing and client communications</p>
	<p>Citation: Laird MC, Hutchings K and Clark BM. 2017. <i>Nearfield Effluent Plume Modelling and Marine Impact Assessment for Land-based Farming of Atlantic Salmon at Dwarskersbos, West Coast, South Africa</i>. Report no. 1695 prepared for Siroccon International (Pty) Ltd on behalf of Anganna Investments (Pty) Ltd by Anchor Environmental Consultants (Pty) Ltd. Pp 60.</p> <p>Location: Dwarskersbos, West Coast, South Africa</p> <p>Main project features: Effluent plume modelling</p> <p>Positions held: Modeller and lead author</p> <p>Activities performed: Field surveys, nearfield modelling, report writing and client communications</p>
	<p>Citation: Laird MC, Hutchings K & Clark BM. 2016. <i>Nearfield Effluent Plume Modelling for the Driftsands Waste Water Treatment Works, Port Elizabeth, South Africa</i>. Project no. 1708/1 prepared for CEN Integrated Environmental Management Unit and Nelson Mandela Bay Metropolitan Municipality by Anchor Environmental Consultants. Pp 28.</p> <p>Location: Port Elizabeth, South Africa</p> <p>Main project features: Effluent plume modelling</p> <p>Positions held: Project leader, modeller and lead author</p> <p>Activities performed: Nearfield modelling, report writing, client communications and representation at meetings</p>
	<p>Citation: Laird MC and Clark BM. 2016. <i>Nearshore Effluent Plume Analysis and Impact Assessment for the Proposed Marine Pipeline Servitude at the Coega Industrial Development Zone, Port of Ngqura, South Africa</i>. Report number 1657/2 prepared for the Coega Development Corporation by Anchor Environmental Consultants. Pp 58.</p> <p>Location: Port of Ngqura, South Africa</p> <p>Main project features: Effluent plume modelling and impact assessment</p> <p>Positions held: Project leader, modeller and lead author</p> <p>Activities performed: Nearfield modelling, data analysis, report writing, client communications and representation at meetings</p>
	<p>Citation: Laird MC and Clark BM. 2015. <i>Effluent Plume Analysis for the Proposed Waste Water Treatment Works at Britannia Bay</i>. Report no. 1624/1 prepared by Anchor Environmental Consultants for Doug Jeffery Environmental Consultants.</p> <p>Location: Britannia Bay, South Africa</p> <p>Main project features: Description of the affected environment and effluent modelling</p> <p>Positions held: Project leader, modeller and lead author</p> <p>Activities performed: Nearfield modelling, bathymetry survey, data analysis and report writing</p>
	<p>Citation: Hutchings K, Laird MC and Clark BM. 2015. <i>Marine Specialist Report for the Upgrade of the Current Sea Based Outfall for Treated Sewage Effluent at Cape Recife, Port Elizabeth</i>. Prepared by Anchor Environmental Consultants for CEN Integrated Environmental Management Unit.</p> <p>Location: Cape Recife, Port Elizabeth</p> <p>Main project features: Description of the affected environment, effluent modelling and impact assessment</p> <p>Positions held: Modeller and chapter author</p> <p>Activities performed: Nearfield modelling; water quality, rocky shore, subtidal and sandy beach surveys; data analysis; report writing; client communications and representation at meetings</p>

<p>Citation: Laird MC and Clark BM. 2015. <i>Effluent Characterisation and Effluent Plume Analysis for the Lucky Star Ltd St Helena Bay Fish Processing Factory</i>. Report no. 1628/1 prepared by Anchor Environmental Consultants for SRK Consulting.</p> <p>Location: St Helena Bay, South Africa</p> <p>Main project features: Water quality, legislation and effluent plume modelling</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Water quality and bathymetry surveys, nearfield modelling, report writing, client communications and representation at meetings</p>
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Impact assessments – fifteen projects

Impact Assessment	<p>Citation: Laird MC and Clark BM. 2018. <i>Marine Impact Assessment for the Replacement of the Chains and Anchors Attached to the SAPREF Offshore Single Buoy Mooring, Durban, KwaZulu-Natal</i>. Report no. 1827/1 prepared by Anchor Environmental Consultants (Pty) Ltd for WSP Parsons Brinckerhoff. Pp 45.</p> <p>Location: South Africa</p> <p>Main project features: Maintenance impact assessment</p> <p>Positions held: Project leader and author</p> <p>Activities performed: Literature review, report writing and client communications</p>
	<p>Citation: Biccard A, Gihwala K, Clark BM, Mostert B, Brown E, Hutchings K, Massie V and M Laird. 2018. <i>Desktop Study of the Potential Impacts of Marine Mining on Marine Ecosystems and Marine Biota in South Africa</i>. Report prepared by Anchor Research and Monitoring (Pty) Ltd for Council for Geoscience. Report no. 1795/1.</p> <p>Location: South Africa</p> <p>Main project features: Mining impact assessment</p> <p>Positions held: Contributing author</p> <p>Activities performed: Literature review - description of the South African marine environment and associated sensitive areas</p>
	<p>Citation: Laird MC, Wright AG, Massie V and Clark BM. 2018. <i>Marine Environmental Impact Assessment for the Proposed Desalination Plants around the Cape Peninsula, South Africa</i>. Report no. 1768/4 prepared by Anchor Environmental Consultants for Advisian: WorleyParsons Group. pp 180.</p> <p>Location: Cape Peninsula, South Africa</p> <p>Main project features: Marine impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Literature review, effluent modelling, report writing and client communications</p>
	<p>Citation: Laird MC and Clark BM. 2017. <i>Marine Impact Assessment for Maintenance of the SAPREF Offshore Pipeline, Durban, KwaZulu-Natal</i>. Report no. 1748/1 prepared by Anchor Environmental Consultants for WSP Parsons Brinckerhoff. Pp 53.</p> <p>Location: Kwa-Zulu Natal, East Coast, South Africa</p> <p>Main project features: Marine impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Survey design, ship-based field survey, literature review, report writing and client communications</p>
	<p>Citation: Laird MC, Wright A and Clark BM. 2017. <i>Marine Environmental Impact Assessment for the Proposed Extension of Tormin Mine, West Coast, South Africa</i>. Report no. 1743/2 prepared for SRK Consulting South Africa (Pty) Ltd by Anchor Environmental Consultants (Pty) Ltd. Pp 112.</p> <p>Location: West Coast, South Africa</p> <p>Main project features: Marine impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Literature review, report writing and client communications</p>

Impact Assessment	<p>Citation: Wright A, Laird MC, and Clark BM. 2017. <i>Marine Environmental Impact Assessment for the Proposed Reverse Osmosis Plant and the Northern Coastal Extension at the Tormin Mine, West Coast, South Africa</i>. Report no. 1733/2 prepared for SRK Consulting South Africa (Pty) Ltd by Anchor Environmental Consultants (Pty) Ltd. Pp 76.</p> <p>Location: West Coast, South Africa</p> <p>Main project features: Marine impact assessment</p> <p>Positions held: Project leader</p> <p>Activities performed: Literature review, report writing and client communications</p>
	<p>Citation: Laird MC, Hutchings K and Clark BM. 2016. <i>Marine Impact Assessment for the Proposed Offshore Sand Winning for Developments within the Port of Durban, Kwazulu Natal</i>. Report no. 1728/1 prepared by Anchor Environmental Consultants for Nema Consulting. Pp 30.</p> <p>Location: Port of Durban, South Africa</p> <p>Main project features: Description of affected environment and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Literature review, report writing and client communications</p>
	<p>Citation: Laird MC and Clark BM. 2016. <i>Marine Impact Assessment for the Construction of a Dedicated Ship and Rig Repair Facility at Berth 205 and a Jetty at the Existing Mossgas Quay Under Project Phakisa, Saldanha Bay</i>. Report no. 1678/1 prepared by Anchor Environmental Consultants for CCA Environmental. Pp 98.</p> <p>Location: Saldanha Bay, South Africa</p> <p>Main project features: Description of affected environment and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Literature review, report writing, client communications and representation at meetings</p>
	<p>Citation: Laird MC and Clark BM. 2016. <i>Marine Environmental Impact Assessment for Proposed Abalone Farms at Doringbaai, West Coast, South Africa</i>. Report no. 1627/2 prepared by Anchor Environmental Consultants for SRK Consulting. Pp 53.</p> <p>Location: Doringbaai, West Coast, South Africa</p> <p>Main project features: Description of affected environment and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Literature review, field surveys, report writing, client communications and representation at meetings</p>
	<p>Citation: Harmer RW, Laird MC and Clark BM. 2016. <i>Marine and Estuarine Impact Assessment for the Proposed Landside Infrastructure Development at Berth 203 To 205, Port of Durban</i>. Specialist Report no. 1707/3 prepared by Anchor Environmental Consultants for Nema Consulting. Pp 38.</p> <p>Location: Port of Durban, South Africa</p> <p>Main project features: Description of affected environment and impact assessment</p> <p>Positions held: Marine Biologist, chapter author</p> <p>Activities performed: Subtidal diving and grab sampling surveys, data analysis and report writing</p>
	<p>Citation: Laird MC, Clark BM and Massie V. 2016. <i>Marine and Estuarine Ecological Impact Assessment of the Dredge Footprint, Infill Area and Offshore Disposal Site for the Proposed Container Terminal at Pier 1, Port of Durban</i>. Specialist Report no. 1655/3 prepared by Anchor Environmental Consultants for Jeffares and Green. Pp 100.</p> <p>Location: Port of Durban, South Africa</p> <p>Main project features: Description of affected environment and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Subtidal diving and grab sampling surveys, data analysis and report writing</p>
	<p>Citation: Laird MC and Clark BM. 2016. <i>Marine Environmental Impact Assessment for Proposed Abalone Farms at Doringbaai, West Coast, South Africa</i>. Specialist Report No. 1627/2 prepared by Anchor Environmental for SRK Consulting. Pp 42.</p> <p>Location: Doringbaai, West Coast, South Africa</p> <p>Main project features: Abalone farming and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Report writing and client communications</p>

Impact Assessment	<p>Citation: Hutchings K, Laird MC and Clark BM. 2015. <i>Marine Impact Assessment for the Simonstown-Glencairn Railway Rehabilitation and Maintenance Work</i>. Prepared by Anchor Environmental Consultants for Marutleng SHE Services.</p> <p>Location: Simonstown, South Africa</p> <p>Main project features: Description of the affected environment and impact assessment</p> <p>Positions held: Marine Biologist and chapter author</p> <p>Activities performed: Sandy beach and rocky shore surveys, data analysis and report writing</p>
	<p>Citation: Laird MC, Tunley KL and Clark BM. 2014. <i>Marine Specialist Impact Assessment Report for Proposed Granger Bay Land Reclamation and Revetment Construction</i>. Report no. 1432/1 prepared by Anchor Environmental Consultants for Victoria and Alfred Waterfront. Pp 40.</p> <p>Location: Granger Bay, South Africa</p> <p>Main project features: Description of affected environment, rocky shore survey and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Report writing</p>
	<p>Citation: Laird MC and Clark BM. 2013. <i>Proposed Replacement of Existing Breakwater at the Salamander Bay Special Forces Regiment 4 Boat Park</i>. Prepared by Anchor Environmental Consultants for Greenmined Environmental. Pp 38.</p> <p>Location: Salamander Bay, Langebaan Lagoon, South Africa</p> <p>Main project features: Rocky shore and lobster surveys and impact assessment</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Rocky shore & subtidal field surveys, data analysis, report writing and client communications</p>

Baseline assessments – eight projects

Baseline assessment	<p>Citation: Laird MC, Hutchings K, Nalusha SH and Clark BM. 2018. <i>Marine Ecology Report for the National Oil Storage Facilities Project, Walvis Bay</i>. Report No. 1790/4 prepared by Anchor Environmental Consultants (Pty) Ltd and Green Team Consultants CC for Om’kumoh AIJ JV. Pp 95.</p> <p>Location: Walvis Bay, Namibia</p> <p>Main project features: Surveys of rocky intertidal, sandy subtidal and associated macrofauna, surf-zone ichthyofaunal, and avifauna</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Subtidal and intertidal survey planning and execution, data analysis, report writing and client communication</p>
	<p>Citation: Wright AG and Laird MC. 2018. <i>Marine Ecology Specialist Study for the Table Bay Hotel Coastal Water Discharge Permit Application, Port of Cape Town</i>. Report no. 1782/1 prepared by Anchor Environmental Consultants (Pty) Ltd for GCX. Pp 38.</p> <p>Location: Table Bay, South Africa</p> <p>Main project features: Literature review</p> <p>Positions held: Marine biologist</p> <p>Activities performed: Review</p>
	<p>Citation: Wright AG, Laird MC, Massie V and Clark BM. 2017. <i>Description of the Receiving Environment for the Proposed Desalination Plants around the Cape Peninsula, South Africa</i>. Report no. 1768/1 prepared by Anchor Environmental Consultants for Advisian: WorleyParsons Group. Pp 61.</p> <p>Location: Cape Peninsula, South Africa</p> <p>Main project features: Literature review</p> <p>Positions held: : Project leader</p> <p>Activities performed: Report writing and client communication</p>

Baseline assessment	<p>Citation: Laird MC and Clark BM. 2017. Description of the Affected Marine Environment in the Coastal Extension North of the Tormin Mine, West Coast, South Africa. Report no. 1733/1 prepared for SRK Consulting South Africa (Pty) Ltd by Anchor Environmental Consultants (Pty) Ltd. Pp 35.</p> <p>Location: West Coast, South Africa</p> <p>Main project features: Rocky shore and avifaunal surveys</p> <p>Positions held: : Project leader and lead author</p> <p>Activities performed: Field surveys, data analysis, report writing, client communication</p>
	<p>Citation: Laird MC, Clark BM, Harmer R and Makunga M. 2016. <i>Description of the Affected Marine and Estuarine Environment at the Naval Base on Salisbury Island, Port of Durban</i>. Specialist Report no. 1655/2 prepared by Anchor Environmental Consultants for Jeffares and Green. Pp 71.</p> <p>Location: Port of Durban, South Africa</p> <p>Main project features: Water quality, subtidal surveys and ichthyofauna</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Field surveys, data analysis and report writing</p>
	<p>Citation: Laird MC, Clark BM and Hutchings K. 2016. <i>Description of the Affected Environment: Marine Specialist Report for the Proposed Marine Pipeline Servitude at Coega Industrial Development Zone</i>. Specialist Report no. 1563/1 prepared by Anchor Environmental Consultants for CEN and Coega Development Corporation. Pp 74.</p> <p>Location: Port of Ngqura, South Africa</p> <p>Main project features: Oceanography, water quality, ecology, biodiversity importance and affected user groups</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Data analysis, report writing and representation at meetings</p>
	<p>Citation: Laird MC, Hutchings K, Liebau V and Clark BM. 2014. <i>Marine Ecology Baseline Report for Proposed Abalone Aquaculture Farm at Brand-se-Baai, West Coast, South Africa</i>. Prepared by Anchor Environmental Consultants for SRK Consulting. Pp 37.</p> <p>Location: Brand-se-Baai, West Coast, South Africa</p> <p>Main project features: Monitoring of ranching impacts</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Subtidal and intertidal surveys, data analysis and report writing</p>
	<p>Citation: Laird MC and Clark BM. 2014. <i>Baseline Marine Biodiversity Assessment for the Proposed Durban Dig-out Port, Isipingo</i>. Report number 1568/1 Prepared by Anchor Environmental Consultants for Jeffares and Green Engineering and Environmental Consulting. Pp 32.</p> <p>Location: Isipingo, South Africa</p> <p>Main project features: Oceanography, biodiversity, ecology, affected users, critical biodiversity assessment and potential impacts</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Literature review and report writing</p>

Aquaculture – four projects

Aquaculture	<p>Citation: Wright AG, Laird MC and Clark BM. 2019. Marine Specialist Study Report for an Aquaculture Facility at Elandsbaai. Specialist Report no. 1828/1 prepared by Anchor Environmental Consultants (Pty) Ltd for Planet Capital Pty (Ltd). Pp 63.</p> <p>Location: West Coast, South Africa</p> <p>Main project features: Dispersion modelling and Impact assessment</p> <p>Positions held: Author and assistant modeller</p> <p>Activities performed: Modelling and report writing</p>
	<p>Citation: Laird M, Hutchings K, Wright A, Massie V & Clark B. 2018. <i>Algoa Bay Sea-based Aquaculture Development Zone. Basic Assessment Process in Terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998). Marine Specialist Impact Assessment – November 2018.</i> Report No. 1808/2 prepared for the Department of Agriculture, Forestry and Fisheries (DAFF) by Anchor Research and Monitoring. Pp 82.</p> <p>Location: Algoa Bay, South Coast, South Africa</p> <p>Main project features: Impact assessment</p> <p>Positions held: Lead author</p> <p>Activities performed: Report writing</p>
	<p>Citation: Laird MC. 2019. <i>Marine Sampling Report for the Proposed Land-Based Fish Farm at Betty's Bay, South Africa.</i> Report no. 1826/1 prepared by Anchor Environmental Consultants for Nature Works Environmental Services. Pp 13.</p> <p>Location: Betty's Bay, South Coast, South Africa</p> <p>Main project features: Bathymetry, current analysis, water quality analysis, biodiversity</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Data collection, analysis and report writing</p>
	<p>Citation: Laird MC, Hutchings K, Liebau V and Clark BM. 2014. <i>Marine Ecology Screening Report for Proposed Abalone Aquaculture Farms at Doringbaai, West Coast, South Africa.</i> Report no. 1627/1 prepared by Anchor Environmental Consultants for SRK Consulting. Pp 34</p> <p>Location: Doringbaai, West Coast, South Africa</p> <p>Main project features: Habitat type, rocky shore surveys</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Data collection, analysis and report writing</p>

Introduced species survey – one project

Introduced species	<p>Citation: Laird MC, Biccard, A and Clark BM. 2013. <i>Alien species survey at the Port of Ngqura.</i> Prepared by Anchor Environmental Consultants for Transnet National Ports Authority. Pp 45.</p> <p>Location: Port of Ngqura, South Africa</p> <p>Main project features: Intertidal invertebrate surveys</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Data analysis and report writing</p>
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National review – one project

National review	<p>Citation: Laird MC. 2017. <i>Environmental Nuclear Siting Review for Thyspunt, Eastern Cape.</i> Report no. 1746/1 prepared by Anchor Environmental Consultants (Pty) Ltd for Mzansi Energy Solutions and Innovations (Pty) Ltd. Pp 30.</p> <p>Location: Thyspunt, Eastern Cape, South Africa</p> <p>Main project features: Site Safety Report</p> <p>Positions held: Marine Biologist</p> <p>Activities performed: Review</p>
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Ecosystem assessment and monitoring – nine projects

Ecosystem assessment and monitoring	<p>Citation: Laird M, Hutchings K, Clark BM, Massie V and Cathcart N. 2018. <i>The State of St Helena Bay 2018</i>. Report No. AEC 1804/1 prepared by Anchor Environmental Consultants (Pty) Ltd for the St Helena Bay Water Quality Trust. Pp 104.</p> <p>Location: St Helena Bay, South Africa</p> <p>Main project features: Benthic macrofauna, water quality and industrial activities</p> <p>Positions held: Project leader and lead author</p> <p>Activities performed: Data analysis and report writing</p>
	<p>Citation:</p> <p>* Clark BM, Massie V, Laird M, Hutchings K, Brown E, Biccadd A, Gihwala K, Makhosonke A, Mostert B, Turpie J. and Vermaak N (DWS). 2018. <i>The State of Saldanha Bay and Langebaan Lagoon 2018, Technical Report</i>. Report No. AEC 1796/1 prepared by Anchor Environmental Consultants (Pty) Ltd for the Saldanha Bay Water Quality Forum Trust, October 2018. Pp 458.</p> <p>* Clark BM, Massie V, Hutchings K, Brown E, Biccadd A, Laird M, Harmer R, Makhosonke A, Wright A and Turpie J. 2017. <i>The State of Saldanha Bay and Langebaan Lagoon 2017, Technical Report</i>. Report no. 1741/1 prepared by Anchor Environmental Consultants (Pty) Ltd for the Saldanha Bay Water Quality Forum Trust. Pp 438.</p> <p>* Clark BM, Massie V, Hutchings K, Laird MC, Biccadd A, Brown E, Duna O & Turpie J. 2016. <i>The State of Saldanha Bay and Langebaan Lagoon 2016</i>. Technical Report. Report no. 1691/1 prepared by Anchor Environmental Consultants (Pty) Ltd for the Saldanha Bay Water Quality Trust. Pp 301.</p> <p>*Clark BM, Hutchings K, Massie V, Laird MC, Biccadd A, Turpie J and Harmer R. 2015. <i>The State of Saldanha Bay and Langebaan Lagoon 2014/2015</i>. Technical Report. Report no. 1653/1 prepared by Anchor Environmental Consultants for the Saldanha Bay Water Quality Trust.</p> <p>*Clark BM, Laird MC, Hutchings K, Liebau V, Biccadd A, Turpie J and Parker-Mallick N. 2014. <i>The State of Saldanha Bay and Langebaan Lagoon 2013/2014</i>. Technical Report no. 1581/1 prepared by Anchor Environmental Consultants for the Saldanha Bay Water Quality Trust. Pp 377.</p> <p>Location: Saldanha Bay, South Africa</p> <p>Main project features: Benthic macrofauna, fish, birds, intertidal invertebrates, water quality and industrial activities</p> <p>Positions held: Marine Biologist and author of three chapters: Water Quality, Rocky Intertidal and Alien Species</p> <p>Activities performed: Field surveys, data analysis and report writing</p>
	<p>Citation:</p> <p>*Harmer RW, Clark BM, Hutchings K, Massie VKR, Brown EA and Laird MC. 2015. <i>Baseline Environmental Monitoring of Sand Banks in the Port of Durban</i>. Technical Report No. 1486/4 prepared by Anchor Environmental Consultants for Nema Consulting and Transnet National Ports Authority.</p> <p>*Harmer RW, Clark BM, Hutchings K, Brown EA and Massie VKR. 2016. <i>Baseline Environmental Monitoring of Sand Banks in the Port of Durban</i>. Technical Report No. 1486/4 prepared by Anchor Environmental Consultants for Nema Consulting and Transnet National Ports Authority.</p> <p>Location: Durban Bay, South Africa</p> <p>Main project features: Benthic macrofauna; fish; birds; intertidal and subtidal invertebrates; microphytobenthos; and water quality</p> <p>Positions held: Marine Biologist</p> <p>Activities performed: Field surveys and data collation</p>
	<p>Citation: Pulfrich A, Hutchings K, Biccadd A, Laird MC and Clark B. 2014. <i>Survey of Sandy-Beach Macrofaunal Communities on the Sperrgebiet Coastline. Consolidated Beach Monitoring Report: 2014</i>. Report prepared by Anchor Environmental Consultants for NAMDEB Diamond Corporation (Pty) Ltd.</p> <p>Location: Sperrgebiet, Namibia</p> <p>Main project features: Mining impacts on sandy beaches</p> <p>Positions held: Marine Biologist</p> <p>Activities performed: Sandy beach field surveys</p>

Maritime Archaeological Impact Assessment

For the CV of John Gribble from ACO Associates, please refer to Appendix 5 of the Maritime Archaeological Impact Assessment Study.

